METROPOLITAN EMERGENCY SERVICES BOARD
BOARD MEETING AGENDA

March 9, 2022, 10:00 a.m.

WebEx Meeting: Meeting Link
Phone Number: (408) 418-9388
Access Code: 2558 600 4816
Password: iHtADqq2A35 (44823772 from phones and video systems)

1. **Call to Order** – Commissioner Irene Fernando, 2022 Board Chair

2. **Approval of Agenda** – Commissioner Fernando

3. **Consent Agenda** – Rohret **(page 3)**
   A. Approval: January 12, 2022 Meeting Minutes
   B. Approval: January 2022 Treasurer's Report
   C. Correspondence

4. **Radio Items** – Tracey Fredrick, Radio Services Coordinator
   A. Approval of Amendment to University of Minnesota's ARMER Participation Plan (**page 43**)
   B. Approval of Amendment to Scott County's ARMER Participation Plan (**page 45**)

5. **9-1-1 Items** – Mike Mihelich, 9-1-1 Manager
   A. Acceptance of MESB NG9-1-1 Transition Strategy Document and NG9-1-1 System Assessment Report **(page 47)**

6. **EMS Items** – Ron Robinson, EMS Coordinator – None

7. **Administrative Items** – Jill Rohret, Executive Director – None

8. **Reports**
   A. Legislative Report – Margaret Vesel/Matthew Bergeron
   B. Statewide Emergency Communications Board (SECB) Reports:
      1) Finance – Wolf/Fredrick
      2) Legislative – Rohret/Atkins
      3) Steering – Commissioner Fernando/Rohret
      4) Other SECB Committees – Fredrick/Mihelich
      5) Board – Commissioner Matascastillo/Rohret

9. **Old Business** – None

10. **New Business**
    A. Recognition of Ron Robinson's Retirement – Fernando/Rohret

11. **Adjourn**

METROPOLITAN EMERGENCY SERVICES BOARD
BOARD MEETING AGENDA

March 9, 2022, 10:00 a.m.

WebEx Meeting: Meeting Link
Phone Number: (408) 418-9388
Access Code: 2558 600 4816
Password: iHtADqq2A35 (44823772 from phones and video systems)

Metropolitan Emergency Services Board Members

Anoka County
- Commissioner Mike Gamache*
- Commissioner Mandy Meisner

Carver County
- Commissioner Gayle Degler* (2022 Treasurer)
- Commissioner John Fahey

Chisago County
- Commissioner Rick Greene*

City of Minneapolis
- Council Member Andrew Johnson*

Dakota County
- Commissioner Joe Atkins*
- Commissioner Mary Hamann-Roland

Hennepin County
- Commissioner Irene Fernando* (2022 Chair)
- Commissioner Chris LaTondresse

Isanti County
- Commissioner Greg Anderson* (2022 Vice Chair)

Ramsey County
- Commissioner Trista Matascastillo* (2022 Secretary)
- Commissioner Jim McDonough

Scott County
- Commissioner Dave Beer
- Commissioner Tom Wolf*

Sherburne County
- Commissioner Barbara Burandt*

Washington County
- Commissioner Stan Karwoski
- Commissioner Fran Miron*

*Denotes Executive Committee member

METROPOLITAN EMERGENCY SERVICES BOARD

BOARD MEETING MINUTES
January 12, 2022
Meeting held via WebEx

Commissioners Present:

Greg Anderson, Isanti County
Joe Atkins, Dakota County
Dave Beer, Scott County
Gayle Degler, Carver County
John Fahey, Carver County
Irene Fernando, Hennepin County
Mike Gamache, Anoka County
Richard Greene, Chisago County
Mary Hamann-Roland, Dakota County
Andrew Johnson, City of Minneapolis
Stan Karwoski, Washington County
Chris LaTondresses, Hennepin County
Trista Matascastillo, Ramsey County
Jim McDonough, Ramsey County
Mandy Meisner, Anoka County
Fran Miron, Washington County
Felix Schmiesing, Sherburne County-absent
Tom Wolf, Scott County

Staff Present: Tracey Fredrick; Mike Mihelich; Ron Robinson; Jill Rohret; and Martha Ziese.

Others Present: Jay Arneson, *MESB Board Counsel*; Matthew Bergeron, *Larkin Hoffman*; Ron Jansen, *Dakota County*; Kyle Olson, *Hennepin County*; and Margaret Vesel, *Larkin Hoffman*.

1. Call to Order
The meeting was called to order at 10:05 a.m. by the 2021 MESB Chair, Commissioner Joe Atkins.

2. Oath of Office
Commissioner Atkins administered the oath of office to the Board. Commissioner Fernando administered the oath of office to Commissioner Atkins.

3. Approval of Agenda
Jill Rohret requested an amendment to the agenda to add item 9D. Discussion of ECN's RapidDeploy mapping pilot project.

Motion by Commissioner Miron seconded by Commissioner Degler to approve the January 12, 2022 agenda as amended. Motion carried.

Roll call for approval of agenda item 3

Name	County/City	Yes	No
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	
Beer, D.	Scott	X	
Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Hamann-Roland, M.	Dakota	X	
Johnson, A.	Minneapolis	X	
Karwoski, S.	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	

Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

4. Election of 2022 Officers and Executive Committee Designation
Rohret noted a correction to the Executive Committee appointment from Scott County; Commissioner Wolf will represent Scott County on the committee rather than Commissioner Beer.

Motion by Commissioner Miron, seconded by Commissioner Wolf to approve the 2022 Officers and Executive Committee as amended. Motion carried.

Roll call for approval of agenda item 4

Name	County/City	Yes	No
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	
Beer, D.	Scott	X	
Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Hamann-Roland, M.	Dakota	X	
Johnson, A.	Minneapolis	X	
Karwoski, S..	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	
Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

5. Thank You to 2021 Chair
Commissioner Fernando thanked Commissioner Atkins for his service as chair.

6. MESB Policy 17
Rohret reminded members of the MESB's conflict of interest policy.

7. Approval of Consent Agenda
Motion made by Commissioner Hamann-Roland, seconded by Commissioner McDonough to approve the January 12, 2022 consent agenda. Motion carried.

Roll call for approval of agenda item 7

Name	County/City	Yes	No
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	
Beer, D.	Scott	X	

Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Hamann-Roland, M.	Dakota	X	
Johnson, A.	Minneapolis	X	
Karwoski, S.	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	
Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

8. Radio Items

A. Approval of Amendment to City of Minneapolis' ARMER Participation Plan

Tracey Fredrick said the City of Minneapolis requests approval of an amendment to its ARMER participation plan to add a new backup dispatch site at the Minneapolis Convention Center. This addition would add seven Motorola consoles, two Conventional Channel Gateway devices with 16 ports and an extension of the dark fiber connection.

B. Approval of Waiver for Eagan Fire Department

Fredrick said Eagan Fire Department requests approval of a waiver to SECB Standard IOP-11 for one additional radio used by an Eagan Firefighter who also serves on the SWAT team. It is not for day-to-day use and will only be used for SWAT operations. There are two other SWAT team members that have similar approved waivers.

C. Approval and Acceptance of 2022 SECB Grant

Fredrick said the Executive Committee recommends approval and acceptance of the FY2022 SECB grant. The grant is in the amount of $250,000.00 and will focus on mental health statutory compliance training, telecommunicator resiliency training, ECN conference attendance, ARMER training video and PSAP security audits. It is likely the grant contract will be received in early 2022.

Motion made by Council Member Johnson, seconded by Commissioner Matascastillo to approve agenda items 8A, 8B, and 8C, Motion carried.

Roll call for approval of agenda items 8A, 8B, and 8C

Name	County/City	Yes	No
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	
Beer, D.	Scott	X	
Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Hamann-Roland, M.	Dakota	X	

Johnson, A.	Minneapolis	X	
Karwoski, S.	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	
Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

9. 9-1-1 Items

A. Ratification of Five Agency Consortium Vesta Hardware Refresh/Purchase Agreement

Mike Mihelich said the MESB Executive Committee recommends the Board ratify the agreement for the five-agency consortium Vesta System (CHS-1). The Executive Committee approved this agreement at the December Executive 2021 meeting because the CHS-1 system agreement was set to expire on December 31, 2021. He noted that MESB Board Counsel approved the agreement. The five participating PSAPs are responsible for paying all costs involved with this agreement.

B. Approval of Amendment 1 to Winbourne Consulting, LLC. Agreement

Mihelich said at the November 10, 2021, MESB meeting, the Board approved an agreement with Winbourne Consulting, LLC for consulting services for the CAD-to-CAD interoperability/workload sharing project in the amount of $44,290,00. The RFP contained an optional amount for the receipt of a best practices document related to this project. The workgroup working on this project think the document would be very helpful and recommend amending the agreement to allow receipt of it and add the additional amount of $1,320.00. The MESB Executive Committee recommends approval of this amendment.

C. Approval of Amendment 1 to 911 Authority Agreement

Mihelich said staff recommend approval of Amendment 1 to the 911 Authority agreement. In July 2021, the MESB an agreement with 911 Authority to provide consulting services related to NG9-1-1 RFPs and to develop transition plans for the metro region. He said the state plans to release its RFP for NG91-1 core services and egress network in January 2022. The original agreement with 911 Authority. did not include support related to the evaluation of responses to the state's RFP; staff think that due to the complexity of NG9-1-1 such support would be beneficial both the MESB and metro region PSAPs. The cost of this additional support is $52,500.00 and would be funded from the Hennepin County Investment Fund.

Motion made by Commissioner McDonough, seconded by Commissioner LaTondresse to approve agenda items 9A, 9B, and 9C. Motion carried.

Roll call for approval of agenda items 9A, 9B, and 9C

Name	**County/City**	**Yes**	**No**
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	
Beer, D.	Scott	X	
Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	

Hamann-Roland, M.	Dakota	X	
Johnson, A.	Minneapolis	X	
Karwoski, S.	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	
Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

9D. Discussion – ECN RapidDeploy Radius Plus Map Pilot Project

Mihelich said ECN engaged RapidDeploy for a statewide pilot project of its RadiusPlus mapping product. Participating PSAPs will have an emergency data gateway (EDG) installed at each participating PSAP to feed automatic location identification (ALI) to RapidDeploy to display on a RadiusPlus map in a web-based browser. The map also displays wireless device locations sourced from both Apple and Google when a device dials 9-1-1. The pilot project is available to all primary PSAPs in the state of Minnesota and ECN asked for a list of participants within the metro region. This product is similar to Jurisdiction View from RapidSOS that is used by most MESB PSAPs today, but includes ALI mapping of all 9-1-1 calls, not just wireless, on maps derived from MESB GIS data.

MESB staff recommend a written agreement between ECN and participating PSAPs which clearly defines what financial and maintenance responsibilities the PSAPs may be responsible for during and after the pilot project.

Mihelich noted RapidDeploy will present at the upcoming January 20, 2022 9-1-1 TOC meeting and will provide additional information and answer questions for PSAPs.

Commissioner Fernando asked if the NG9-1-1 infrastructure, operational and behavioral aspects were being taken into consideration. How will residents receive benefits of NG9-1-1 could be a discussion.

Rohret said that many of those issues will be addressed in the work of 911 Authority.

10. EMS Items

A. Approval of Amendment to Agreement for MCI Bus Maintenance

Rohret said the MESB Executive Committee recommends the Board ratify the contract with the National Academy of Ambulance Coding to provide two Certified Ambulance Documentation Specialist (CADS) classes for EMS providers. The approval was granted from the MESB Executive Committee because a deposit was needed to secure the location for classes, which will be held in early 2022.

Motion made by Commissioner Hamann-Roland, seconded by Commissioner Matascastillo to ratify the approval of the contract for Certified Ambulance Documentation Specialist classes. Motion carried.

Roll call for approval of agenda item 10A

Name	County/City	Yes	No
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	

Beer, D.	Scott	X	
Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Hamann-Roland, M.	Dakota	X	
Johnson, A.	Minneapolis	X	
Karwoski, S.	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	
Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

11. Administrative Items

A. Approval of 2022 Appointments to SECB/SECB Committees

Rohret stated that the MESB makes its annual appointments to the Statewide Emergency Communication Board (SECB) and its committees in January. She contacted the commissioners and other appointees which served in 2021 to see if they would still be interested or willing to continue in the appointment; all agreed. Those names are included as a recommendation, but if someone else would like to serve they would be willing to step down.

Motion made by Commissioner Miron, seconded by Commissioner Wolf to approve the slate of representatives to the SECB and SECB committee. Motion carried.

B. Approval of the 2022 MESB Legislative Agenda

Rohret presented the draft 2022 MESB legislative agenda. Many of the items have carried over from past legislative agendas. Items which are known to be introduced in 2022 have been included, such as amending the technical portions of MS 403. There are other issues which will arise over the session; she will keep the board informed of these issues.

Commissioner McDonough asked if MESB staff works with other organizations, such as MSA and AMC, to work out policy differences or to lobby together.

Rohret responded that she and the lobbyists from Larkin Hoffman work regularly with lobbyists and members from those organizations and will continue to do so in 2022.

Roll call for approval of agenda items 11A and 11B

Name	**County/City**	**Yes**	**No**
Anderson, G.	Isanti	X	
Atkins, J.	Dakota	X	
Beer, D.	Scott	X	
Degler, G.	Carver	X	
Fahey, J.	Carver	X	
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	

Hamann-Roland, M.	Dakota	X	
Johnson, A.	Minneapolis	X	
Karwoski, S.	Washington	X	
LaTondresse, C.	Hennepin	X	
Matascastillo, T.	Ramsey	X	
McDonough, J.	Ramsey	X	
Meisner, M.	Anoka	X	
Miron, F.	Washington	X	
Schmiesing, F.	Sherburne		
Wolf, T.	Scott	X	

Yea: 17 Nay: 0 Motion passes.

12. Reports

A. Legislative

Margaret Vesel and Matthew Bergeron of Larkin Hoffman presented a forecast of the 2022 legislative session, including how to use the largest surplus in history, new leadership in both parties in the Senate, and looming redistricting for the 2022 election.

B. Statewide Emergency Communications Board (SECB) Reports:

1. Finance

Fredrick said the Finance Committee met in December and will meet in January as well. The committee continues to discuss grant allocations and how to meet the goals outlined in the 2022-2024 SECB strategic plan.

2. Legislative

Rohret said the Legislative Committee met last week and discussed the upcoming legislative session and the status of SECB governance discussions.

3. Steering

Commissioner Fernando said the Steering Committee will meet this afternoon and will discuss the SECB strategic plan and will send a recommendation for approval to the SECB.

4. Other Committees

Fredrick said the LMR committee met and discussed the radio items approved here today, as well as amendments to some statewide standards. Mihelich said the NG9-1-1 committee did not meet in December but is scheduled to meet next week.

5. Board

Commissioner Matascastillo said that the SECB met on December 23, 2021. The meeting was attended by DPS Commissioner John Harrington, who indicated he was willing to listen to concerns and suggested governance changes offered by the SECB. The work of the SECB governance workgroup continues and will be led by Commissioner Matascastillo.

13. Old Business – None**.**

14. New Business – None.

15. Adjournment

Commissioner Fernando adjourned the meeting at 11:03 a.m.

February 1, 2022

Board of Commissioners
Metropolitan Emergency Services Board
<Sent Electronically>

We are engaged to audit the financial statements of the governmental activities and each major fund of Metropolitan Emergency Services Board for the year ended December 31, 2021. Professional standards require that we provide you with the following information related to our audit. We are available to meet with you to discuss this information further since a two-way dialogue can provide valuable information for the audit process. Our contact information is provided below:

	Direct Dial	Email
Cathy Lydon, CPA, Director	651-255-9337	clydon@redpathcpas.com
Lyndsey Peck, CPA, Manager	651-407-5853	lpeck@redpathcpas.com

Our Responsibilities under U.S. Generally Accepted Auditing Standards and *Government Auditing Standards*

As stated in our engagement letter dated January 20, 2022, our responsibility, as described by professional standards, is to express opinions about whether the financial statements prepared by management with your oversight are fairly presented, in all material respects, in conformity with U.S. generally accepted accounting principles. Our audit of the financial statements does not relieve you or management of your responsibilities.

As part of our audit, we will consider the internal control of Metropolitan Emergency Services Board. Such considerations are solely for the purpose of determining our audit procedures and not to provide any assurance concerning such internal control.

As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we will also perform tests of Metropolitan Emergency Services Board's compliance with certain provisions of laws, regulations, contracts, and grants. However, providing an opinion on compliance with those provisions in not an objective of our audit.

Generally accepted accounting principles provide for certain required supplementary information (RSI) to supplement the basic financial statements. Our responsibility with respect to the management's discussion and analysis, the budgetary comparison information, and the schedules of OPEB and pension information, which supplement the basic financial statements, is to apply certain limited procedures in accordance with generally accepted auditing standards. However, the RSI will not be audited and, because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance, we will not express an opinion or provide any assurance on the RSI.

Planned Scope, Timing of the Audit, Significant Risks, and Other

An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements; therefore, our audit will involve judgment about the number of transactions to be examined and the areas to be tested.

Our audit will include obtaining an understanding of the entity and its environment, including internal control, sufficient to assess the risks of material misstatement of the financial statements and to design the nature, timing, and extent of further audit procedures. Material misstatements may result from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the entity or to acts by management or employees acting on behalf of the entity. We will generally communicate our significant findings at the conclusion of the audit. However, some matters could be communicated sooner, particularly if significant difficulties are encountered during the audit where assistance is needed to overcome the difficulties or if the difficulties may lead to a modified opinion. We will also communicate any internal control related matters that are required to be communicated under professional standards.

During audit planning, we identified the following areas as significant risks of material misstatement and we will conduct audit procedures aligned with these risks:

- Management override of controls
- Cash disbursements

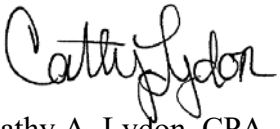
We expect to begin our audit on March 28, 2022 and issue our reports no later than June 30, 2022. Cathy Lydon is the engagement director and is responsible for supervising the engagement and signing the report or authorizing another individual to sign it.

Additionally, audit standards require us to inquire of those directly charged with governance as to their knowledge or suspicions of fraud, as well as their views about fraud risks. As such, please contact us if there is anything which you would like to discuss in these regards.

This information is intended solely for the use of the Board and management of Metropolitan Emergency Services Board and is not intended to be, and should not be, used by anyone other than these specified parties.

Sincerely,

REDPATH AND COMPANY, LTD.



Cathy A. Lydon, CPA

CAL/ajf

REDPATH AND COMPANY

January 20, 2022

To the Board of Directors
Metropolitan Emergency Services Board
Metro Counties Government Center
2099 University Avenue W., Suite 201
St. Paul, MN 55104-3431

We are pleased to confirm our understanding of the services we are to provide Metropolitan Emergency Services Board for the years ended December 31, 2021 through December 31, 2025.

Audit Scope and Objectives

We will audit the financial statements of the governmental activities, each major fund, and the disclosures, which collectively comprise the basic financial statements of Metropolitan Emergency Services Board as of and for the years ended December 31, 2021-December 31, 2025. Accounting standards generally accepted in the United States of America (GAAP) provide for certain required supplementary information (RSI), such as management's discussion and analysis (MD&A), to supplement Metropolitan Emergency Services Board's basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. As part of our engagement, we will apply certain limited procedures to Metropolitan Emergency Services Board's RSI in accordance with auditing standards generally accepted in the United States of America (GAAS). These limited procedures will consist of inquiries of management regarding the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We will not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance. The following RSI is required by GAAP and will be subjected to certain limited procedures, but will not be audited:

- Management's Discussion and Analysis
- Budgetary Comparison Schedules, General Fund, 911 Fund
- Schedule of Funding Progress – Other Postemployment Benefit Plan
- Schedule of Proportionate Share of Net Pension Liability
- Schedule of Pension Contributions

The objectives of our audit are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error; issue an auditor's report that includes our opinion about whether your financial statements are fairly presented, in all material respects, in conformity with GAAP. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit

conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. Misstatements, including omissions, can arise from fraud or error and are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment of a reasonable user made based on the financial statements.

The objectives also include reporting on internal control over financial reporting and compliance with provisions of laws, regulations, contracts, and award agreements, noncompliance with which could have a material effect on the financial statements in accordance with *Government Auditing Standards*.

We will also issue a report on compliance based on the *Minnesota Legal Compliance Audit Guide for Other Political Subdivisions*, promulgated by the State Auditor pursuant to Minnesota Statute 6.65.

Auditor's Responsibilities for the Audit of the Financial Statements

We will conduct our audit in accordance with GAAS; the standards for financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the minimum procedures for auditors as prescribed by Minnesota Statute 6.65, and will include tests of your accounting records and other procedures we consider necessary to enable us to express such opinions. As part of an audit in accordance with GAAS and *Government Auditing Standards*, we exercise professional judgment and maintain professional skepticism throughout the audit.

We will evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management. We will evaluate the overall presentation of the financial statements, including the disclosures, and determine whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation. We will plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether from (1) errors, (2) fraudulent financial reporting, (3) misappropriation of assets, or (4) violations of laws or governmental regulations that are attributable to the entity or to acts by management or employees acting on behalf of the entity. Because the determination of waste and abuse is subjective, *Government Auditing Standards* do no expect auditors to perform specific procedures to detect waste or abuse in financial audits nor do they expect auditors to provide reasonable assurance of detecting waste or abuse.

Because of the inherent limitations of an audit, combined with the inherent limitations of internal control, and because we will not perform a detailed examination of all transactions, there is an unavoidable risk that some material misstatements may not be detected by us, even though the audit is properly planned and performed in accordance with GAAS and *Government Auditing Standards*. In addition, an audit is not designed to detect immaterial misstatements or violations of laws or governmental regulations that do not have a direct and material effect on the financial

statements. However, we will inform the appropriate level of management of any material errors, fraudulent financial reporting, or misappropriation of assets that comes to our attention. We will also inform the appropriate level of management of any violations of laws or governmental regulations that come to our attention, unless clearly inconsequential. Our responsibility as auditors is limited to the period covered by our audit and does not extend to any later periods for which we are not engaged as auditors.

We will also conclude, based on the evidence obtained, whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the entity's ability to continue as a going concern for a reasonable period of time.

Our procedures will include tests of documentary evidence supporting the transactions recorded in the accounts, tests of the physical existence of inventories, and direct confirmation of receivables and certain assets and liabilities by correspondence with selected individuals, creditors, and financial institutions, as deemed necessary. We may also request written representations from your attorneys as part of the engagement.

Audit Procedures – Internal Control

We will obtain an understanding of the entity and its environment, including internal control relevant to the audit, sufficient to identify and assess the risks of material misstatement of the financial statements, whether due to error or fraud, and to design and perform audit procedures responsive to those risks and obtain evidence that is sufficient and appropriate to provide a basis for our opinions. Tests of controls may be performed to test the effectiveness of certain controls that we consider relevant to preventing and detecting errors and fraud that are material to the financial statements and to preventing and detecting misstatements resulting from illegal acts and other noncompliance matters that have a direct and material effect on the financial statements. Our tests, if performed, will be less in scope than would be necessary to render an opinion on internal control and, accordingly, no opinion will be expressed in our report on internal control issued pursuant to *Government Auditing Standards*. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentation, or the override of internal control. An audit is not designed to provide assurance on internal control or to identify significant deficiencies or material weaknesses. Accordingly, we will express no such opinion. However, during the audit, we will communicate to management and those charged with governance internal control related matters that are required to be communicated under AICPA professional standards and *Government Auditing Standards*.

Audit Procedures – Compliance

As part of obtaining reasonable assurance about whether the financial statements are free of material misstatement, we will perform tests of Metropolitan Emergency Services Board's compliance with the provisions of applicable laws, regulations, contracts, and agreements, including grant agreements. However, the objective of our audit will not be to provide an

opinion on overall compliance, and we will not express such an opinion in our report on compliance issued pursuant to *Government Auditing Standards*.

The *Minnesota Legal Compliance Audit Guide for Other Political Subdivisions* requires that we test whether the entity has complied with certain provisions of Minnesota statutes. Our audit will include such tests of the accounting records and other procedures as we consider necessary in the circumstances.

Other Services

We will also assist in preparing the financial statements and related notes of Metropolitan Emergency Services Board in conformity with accounting principles generally accepted in the United States of America based on information provided by you, provide accounting services, including cash-to-accrual assistance, and assist with preparation of pension and OPEB workpapers and journal entries based on information provided by you, PERA and actuaries. These nonaudit services do not constitute an audit under *Government Auditing Standards* and such services will not be conducted in accordance with *Government Auditing Standards*. We will perform the services in accordance with applicable professional standards. The other services are limited to the financial statement, accounting services, pension and OPEB services previously defined. We, in our sole professional judgment, reserve the right to refuse to perform any procedure or take any action that could be construed as assuming management responsibilities.

Responsibilities of Management for the Financial Statements

Our audit will be conducted on the basis that you acknowledge and understand your responsibility for designing, implementing, establishing, and maintaining effective internal controls relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error, and for evaluating and monitoring ongoing activities to help ensure that appropriate goals and objectives are met; following laws and regulations; and ensuring that management and financial information is reliable and properly reported. Management is also responsible for implementing systems designed to achieve compliance with applicable laws, regulations, contracts, and grant agreements. You are responsible for the selection and application of accounting principles, for the preparation and fair presentation of the financial statements and all accompanying information in conformity with accounting principles generally accepted in the United States of America, and for compliance with applicable laws and regulations and the provisions of contracts and grant agreements.

Management is responsible for making drafts of financial statements, all financial records, and related information available to us and for the accuracy and completeness of that information (including information from outside of the general and subsidiary ledgers). You are also responsible for providing us with (1) access to all information of which you are aware that is relevant to the preparation and fair presentation of the financial statements, such as records, documentation, identification of all related parties and all related-party relationships and

transactions, and other matters; (2) additional information that we may request for the purpose of the audit; and (3) unrestricted access to persons within the entity from whom we determine it necessary to obtain audit evidence. At the conclusion of our audit, we will require certain written representations from you about your responsibilities for the financial statements; compliance with laws, regulations, contracts, and grant agreements; and other responsibilities required by GAAS and *Government Auditing Standards*.

Your responsibilities include adjusting the financial statements to correct material misstatements and confirming to us in the management representation letter that the effects of any uncorrected misstatements aggregated by us during the current engagement and pertaining to the latest period presented are immaterial, both individually and in the aggregate, to the financial statements of each opinion unit taken as a whole.

You are responsible for the design and implementation of programs and controls to prevent and detect fraud, and for informing us about all known or suspected fraud affecting the entity involving (1) management, (2) employees who have significant roles in internal control, and (3) others where the fraud could have a material effect on the financial statements. Your responsibilities include informing us of your knowledge of any allegations of fraud or suspected fraud affecting the entity received in communications from employees, former employees, grantors, regulators, or others. In addition, you are responsible for identifying and ensuring that the entity complies with applicable laws, regulations, contracts, agreements, and grants and for taking timely and appropriate steps to remedy fraud and noncompliance with provisions of laws, regulations, contracts, or grant agreements that we report.

With regard to publishing the financial statements on your website, you understand that websites are a means of distributing information and, therefore, we are not required to read the information contained in those sites or to consider the consistency of other information on the website with the original document.

Management is responsible for establishing and maintaining a process for tracking the status of audit findings and recommendations. Management is also responsible for identifying and providing report copies of previous financial audits, attestation engagements, performance audits or other studies related to the objectives discussed in the Audit Scope and Objectives section of this letter. This responsibility includes relaying to us corrective actions taken to address significant findings and recommendations resulting from those audits, attestation engagements, performance audits, or other studies. You are also responsible for providing management's views on our current findings, conclusions, and recommendations, as well as your planned corrective actions for the report, and for the timing and format for providing that information.

You agree to assume all management responsibilities relating to the financial statements and related notes, cash-to-accrual assistance, and the preparation of pension and OPEB workpapers and related journal entries, and any other nonaudit services we provide. You will be required to acknowledge in the management representation letter our assistance with the preparation of the financial statements and related notes, cash-to-accrual assistance, and the pension and OPEB

workpapers and related journal entries, and that you have reviewed and approved the financial statements and related notes, cash-to-accrual assistance, and the pension and OPEB workpapers and related journal entries, prior to their issuance and have accepted responsibility for them. Further, you agree to oversee the nonaudit services by designating an individual, preferably from senior management, with suitable skill, knowledge, or experience; evaluate the adequacy and results of those services; and accept responsibility for them.

Engagement Administration, Fees and Other

We understand that your employees will prepare all cash, accounts receivable, or other confirmations we request and will locate any documents selected by us for testing. We will schedule the engagement based in part on deadlines, working conditions, and the availability of your key personnel. We will plan the engagement based on the assumption that your personnel will cooperate and provide assistance by performing tasks such as preparing requested schedules, retrieving supporting documents, and preparing confirmations. If, for whatever reason, your personnel are unavailable to provide the necessary assistance in a timely manner, it may substantially increase the work we have to do to complete the engagement within the established deadlines, resulting in an increase in fees over our original fee estimate.

We will provide copies of our reports to Metropolitan Emergency Services Board; however, management is responsible for distribution of the reports and the financial statements. Unless restricted by law or regulation, or containing privileged and confidential information, copies of our reports are to be made available for public inspection.

The audit documentation for this engagement is the property of Redpath and Company, Ltd. and constitutes confidential information. However, subject to applicable laws and regulations, audit documentation and appropriate individuals will be made available upon request and in a timely manner to oversight agencies, regulators, a federal agency providing direct or indirect funding, or the U.S. Government Accountability Office for the purposes of a quality review of the audit, to resolve audit findings, or to carry out oversight responsibilities. We will notify you of any such request. If requested, access to such audit documentation will be provided under the supervision of Redpath and Company, Ltd. personnel. Furthermore, upon request, we may provide copies of selected audit documentation to the aforementioned parties. These parties may intend or decide to distribute the copies or information contained therein to others, including other governmental agencies.

The audit documentation for this engagement will be retained for a minimum of five years after the report release date or for any additional period requested by regulators. If we are aware that a federal awarding agency or auditee is contesting an audit finding, we will contact the party(ies) contesting the audit finding for guidance prior to destroying the audit documentation.

The AICPA Code of Professional Conduct requires Redpath to maintain our independence with regards to certain attestation services provided to Metropolitan Emergency Services Board. These rules require Metropolitan Emergency Services Board to take responsibility for all

nonattest services. Redpath cannot serve as custodian for your data in such a way that your data is incomplete and accessible only through Redpath or the Redpath portal. As such, any financial report, reconciliation, document, and calculation (depreciation schedules, journal entries, etc.) that we prepare or update on your behalf will be sent to you at the completion of each attest or nonattest service. You are responsible for downloading and maintaining these records as well as all supporting documents generated in the normal course of business until the retention period expires.

Cathy Lydon is the engagement director and is responsible for supervising the engagement and signing the reports or authorizing another individual to sign them. We expect to begin our audit each year in March and issue our reports no later than the end of June.

Unless additional work is requested or required, our fee for these services will be based upon our proposal dated July 30, 2021 and will be as follows:

Services	2021	2022	2023	2024	2025
Metropolitan Emergency Services Board:					
Financial audit	$24,000	$24,650	$25,300	$26,000	$26,750
Single audit (if required)	4,500	4,650	4,800	4,950	5,100
Accounting services - cash to accrual assistance, as needed	4,500	4,650	4,800	4,950	5,100
GASB 68 (pension) calculation assistance	585	600	615	630	645
OPEB calculation assistance	n/a	n/a	n/a	n/a	n/a
Quarterly Task List meetings	no charge	no charge	no charge	no charge	no charge
Routine phone calls	no charge	no charge	no charge	no charge	no charge
Total [1], [2]	$33,585	$34,550	$35,515	$36,530	$37,595

[1]Single Audit assumes one major program.

[2]Assumes no significant changes in accounting and auditing standards.

Out-of-pocket costs, such as confirmation and courier fees, will be billed in addition to the fees stated above. We bill our fees monthly as work progresses and expect payment within thirty (30) days. Each invoice includes a detailed description of the services provided. Amounts over thirty (30) days will be considered delinquent. We reserve the right to assess a 1.5% per month service charge on any balance older than thirty (30) days. In the event it becomes necessary to refer this account to an attorney for collection (whether or not suit is commenced), you will be responsible for payment of all reasonable costs of such collections, including reasonable attorney fees. Our policy is to suspend work if your account becomes overdue by sixty (60) days or more, and work will not be resumed until your account is paid in full. Should we elect to discontinue services, you will be responsible for all time and expenses incurred through the date of termination regardless of whether we have issued a report or other final product.

The above fees are based on the anticipated scope of services, anticipated cooperation from your personnel and the assumption that unexpected circumstances will not be encountered. Metropolitan Emergency Services Board acknowledges that the following circumstances may result in a change in scope of services and an increase in fees:

- Significant audit adjustments, internal control deficiencies or compliance findings,
- New accounting standards,
- Failure to complete the preparation work by the applicable due dates,
- Inaccurate records,
- Turnover in your staff,
- Significant unanticipated or undisclosed transactions, issues, or other such unforeseeable circumstances,
- Delays causing scheduling changes or disruption of previously scheduled timing of work (fieldwork),
- Circumstances requiring revisions to work previously completed or delays in resolution of issues that extend the period of time necessary to complete the audit

Our fees do not include bookkeeping or accounting assistance, preparation of audit workpapers, reconciliations or similar assistance (unless otherwise noted in the sections above). Our fees for such services will be dependent on the level of effort required.

Services requested by you that are not included in this engagement letter will be billed dependent on the level of effort required and will be subject to all the terms of this letter.

Our fees and rates are adjusted annually for general economic factors.

If we are requested or required to provide documents or testimony to support litigation proceedings as a professional service on your behalf (that is, litigation in which we are not a party as a result of our engagement), you will be billed for our time at the current standard rates and all out-of-pocket expenditures, including copying costs and legal fees.

In recognition of the importance of our employees, it is hereby agreed that Metropolitan Emergency Services Board will not solicit our employees for employment or enter into an independent contractor arrangement with any individual who is or was an employee of Redpath and Company for a period of twelve months following the date of the conclusion of this engagement. If Metropolitan Emergency Services Board violates this non-solicitation clause, Metropolitan Emergency Services Board agrees to pay Redpath and Company a fee equal to 25% of the hired person’s last annual salary at Redpath and Company at the time of violation so as to reimburse Redpath and Company for the costs of hiring and training a replacement.

Reporting

We will issue a written report upon completion of our audit of Metropolitan Emergency Services Board's financial statements which will also address other information in accordance with AU-C 720, *The Auditor's Responsibilities Relating to Other Information Included in Annual Reports*. Our report will be addressed to the Board of Directors of Metropolitan Emergency Services Board. Circumstances may arise in which our report may differ from its expected form and content based on the results of our audit. Depending on the nature of these circumstances, it may be necessary for us to modify our opinions, add a separate section, or add an emphasis-of-matter or other-matter paragraph to our auditor's report, or if necessary, withdraw from this engagement. If our opinions are other than unmodified, we will discuss the reasons with you in advance. If, for any reason, we are unable to complete the audit or are unable to form or have not formed opinions, we may decline to express opinions or issue reports, or we may withdraw from this engagement.

We will also provide a report (that does not include an opinion) on internal control related to the financial statements and compliance with the provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a material effect on the financial statements as required by *Government Auditing Standards*. The report on internal control and on compliance and other matters will state (1) that the purpose of the report is solely to describe the scope of testing on internal control and compliance, and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control on compliance, and (2) that the report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. The report will also state that the report is not suitable for any other purpose. If during our audit we become aware that Metropolitan Emergency Services Board is subject to an audit requirement that is not encompassed in the terms of this engagement, we will communicate to management and those charged with governance that an audit in accordance with U.S. generally accepted auditing standards and the standards for financial audits contained in *Government Auditing Standards* may not satisfy the relevant legal, regulatory, or contractual requirements.

We appreciate the opportunity to be of service to Metropolitan Emergency Services Board and believe this letter accurately summarizes the significant terms of our engagement. If you have any questions, please let us know. If you agree with the terms of our engagement as described in this letter, please sign the attached copy and return it to us via email.

Sincerely,

REDPATH AND COMPANY, LTD.

Cathy A. Lydon, CPA
CAL/kml

Response

This letter correctly sets forth the understanding of Metropolitan Emergency Services Board.

DocuSigned by: Jill Rohret 4132FAD4D21446E...	DocuSigned by: Irene Fernando D7B9AB924883458...
Jill Rohret	Irene Fernando
Executive Director	MESB Board Chair
Executive Director	Board Chair
1/20/2022 | 12:44 PM PST	1/20/2022 | 3:43 PM CST
Date	Date

Nonaudit Services

The individual(s) assigned to oversee the nonaudit services is Kelli Jackson, the Financial Services Specialist, unless indicated below:

Kelli Jackson, Financial Services Specialist (name and title)

METROPOLITAN
EMERGENCY SERVICES BOARD

2099 UNIVERSITY AVENUE WEST
SAINT PAUL, MINNESOTA
55104-3431

PHONE 651-643-8395
WWW.MN-MESB.ORG

January 12, 2022

VIA ELECTRONIC MAIL

Commissioner John Harrington
Minnesota Department of Public Safety
North Central Life Tower, Suite 1000
445 Minnesota Street
St. Paul, MN 55101-5000

Dear Commissioner Harrington:

At the January 12, 2022 Metropolitan Emergency Services Board (MESB) meeting, the MESB made appointments to the SECB and its committees. The appointments are listed on the enclosed pages.

Please contact me with any questions regarding these appointments. I can be reached at (651) 643-8394 or jrohret@mn-mesb.org.

Thank you for your time and consideration.

Jill Rohret
Executive Director

cc: Dana Wahlberg, ECN
Aleta Nimlos, ECN

Enclosure

MESB 2022 Appointments to SECB/SECB Committees

SECB
Primary Representative:
Commissioner Trista Matascastillo
Ramsey County
220 Courthouse, 15 W. Kellogg Blvd., St. Paul, MN 55102
trista.matascastillo@co.ramsey.mn.us

Alternate:
Jill Rohret, Executive Director
Metropolitan Emergency Services Board
2099 University Avenue West, St. Paul, MN 55104
(651) 643-8394
jrohret@mn-mesb.org

SECB Finance:
Primary Representative:
Commissioner Tom Wolf
Scott County
200 Fourth Ave. West
Shakopee, MN 55379
twolf@co.scott.mn.us

Alternate: Same as in 2021
Tracey Fredrick,
tfredrick@mn-mesb.org

SECB Interoperability:
Primary Representative: Same as 2021
Jake Thompson
jake.thompson@chisagocounty.us

Alternate: Same as in 2021
Nate Timm
nate.timm@co.washington.mn.us

SECB IPAWS: Same as 2021
Primary Representative:
Scott Haas
shaas@co.scott.mn.us

Alternate:
Kari Morrissey
Anoka County Emergency Communications
2100 Third Avenue
Anoka, MN 55303
kari.morrissey@co.anoka.mn.us

SECB Land Mobile Radio:
Primary Representative: Same as 2021
Nate Timm
nate.timm@co.washington.mn.us

Alternate:
Curt Meyer
Hennepin Co. Sheriff's Office
1245 Shenandoah Lane
Plymouth, MN 55447
curt.meyer@hennepin.us

SECB Legislative:
Primary Representative:
Jill Rohret, Executive Director
Metropolitan Emergency Services Board
2099 University Avenue West
St. Paul, MN 55104
jrohret@mn-mesb.org

Alternate:
Commissioner Joe Atkins
Dakota County
1590 Highway 55
Hastings, MN 55033-2343

SECB NextGen 911
Primary Representative:
Chad Loeffler
Metro Transit
519 10th Ave. N., Minneapolis, MN 55411
(612) 349-7311
chad.loeffler@metrotransit.org

Alternate:
Janelle Harris
City of Edina
4801 W. 50th Street, Edina, MN 55424
(952) 833-9523
jharris@edinamn.gov

SECB Steering:
Primary Representative: Same as 2021
Commissioner Irene Fernando
irene.fernando@hennepin.us

Alternate: Same as 2021
Jill Rohret
jrohret@mn-mesb.org

SECB Wireless Broadband & Applications: Same as 2021
Primary Representative:
Rod Olson
rodney.olson@minneapolismn.gov

Alternate:
Jake Thompson
jake.thompson@chisagocounty.us

The MESB also has a new 2022 chair, which will require a change to your website and some email lists.

Please remove Commissioner Joe Atkins and replace with Commissioner Irene Fernando. Commissioner Fernando's contact information is as follows:

Commissioner Irene Fernando
Hennepin County
A2400 Government Center
300 South Sixth Street
Minneapolis, MN 55487
(612) 348-7882
irene.fernando@hennepin.us

METROPOLITAN
EMERGENCY SERVICES BOARD

2099 UNIVERSITY AVENUE WEST
SAINT PAUL, MINNESOTA
55104-3431

PHONE 651-643-8395
WWW.MN-MESB.ORG

February 18, 2022

Representative Carlos Mariani
470 State Office Building
St. Paul, MN 55155

RE: Support for HF 2821 – Statewide Public Safety Radio Communication System Equipment Grant Program Established, and Money Appropriated

Dear Chair Mariani:

The Metropolitan Emergency Services Board writes in support of HF 2821, which would establish and fund a grant program for statewide public safety radio communication system (ARMER system) equipment.

Effective radio communication is the backbone of public safety in the State of Minnesota. First responders, firefighters, emergency medical personnel, and law enforcement personnel depend upon it to effectively perform their jobs. Emergency radio communication saves lives and serves every resident of the State of Minnesota.

In many local jurisdictions, the radios currently operating on the ARMER system are outdated. Radios are costly to maintain and replace and, in local communities, where budgets are tight, it is very difficult to plan for the costly process of replacing these critical communication tools. The replacement of public safety radios directly affects local taxpayers. Radios are critical to deploying resources, protecting property and life, and protecting our workers. However, they often get overlooked for replacement in many areas of the state because there is no dedicated funding source. Emergency services departments rely on the ARMER radio system to provide the interoperability between the departments at the local, regional, state, and federal levels.

Many radios currently operating on the ARMER system were purchased before year 2011, and no longer receive vendor support. It is extremely difficult to find parts to fix or maintain these radios and it would be in the best interest of everyone for these radios to be replaced. In addition to outdated equipment, other radios currently in use will require software upgrades in order for communications to be encrypted, which is now required by the Federal Bureau of Investigations when transmitting criminal justice data.

Prices of new radios range from $2,500 to $4,800 each; this expense does not include costs to program the radios or any additional equipment or supplies required to add the radio onto the statewide ARMER system.

Local governments across the state support the creation and funding of a grant program allowing for the critical upgrade of public safety radios, as well as a sustainable program which supports ongoing replacement of these radios.

Thank you for your time and consideration.

Sincerely,

Irene Fernando
Chair
Metropolitan Emergency Services Board

Jill Rohret
Executive Director
Metropolitan Emergency Services Board

THE MINNESOTA MODEL

LISTENING • LEARNING • LEADING

11TH ANNUAL

MINNESOTA PUBLIC SAFETY COMMUNICATIONS CONFERENCE

APRIL 25 – 27, 2022

This year's event will be held at the Breezy Point Resort in the Brainerd Lakes Area. Also new this year:

- A conference hashtag to use in social/web posts: #MnPSCC.
- Learning themes to promote the benefits and values of a fresh perspective.
- A mobile app will replace the annual conference booklet! This app will include:
  - Daily schedules
  - General and breakout session details
  - Speaker information
  - Exhibition/vendor information
  - Live feed of conference events
  - Group chat opportunities
  - Maps and helpful tips
- Watch for download instructions and additional information in the coming weeks!
- Learn more about the conference, including registration details, on our website!
- Connect with us online or on social media.

Facebook.com/MnECN/ @MnDPS_ECN ecn.dps.mn.gov

METROPOLITAN EMERGENCY SERVICES BOARD

EXECUTIVE COMMITTEE MEETING MINUTES
February 9, 2022
Meeting held via WebEx

Commissioners Present:

Greg Anderson, Isanti County
Joe Atkins, Dakota County
Barbara Burandt, Sherburne County
Gayle Degler, Carver County - **absent**
Irene Fernando, Hennepin County
Mike Gamache, Anoka County
Rick Greene, Chisago County
Andrew Johnson, City of Minneapolis
Trista Matascastillo, Ramsey County
Fran Miron, Washington County
Tom Wolf, Scott County

Staff Present: Tracey Fredrick, Mike Mihelich, Jill Rohret, and Martha Ziese.

Guests Present: Jay Arneson, *Board Counsel*; Matthew Bergeron, *Larkin Hoffman*; Jake Thompson, *Chisago County*; and Margaret Vesel*, Larkin Hoffman*.

1. Call to Order:
The meeting was called to order at 10:00 a.m. by MESB Chair Commissioner Irene Fernando.

2. Approval of the February 9, 2022 Agenda
Motion made by Commissioner Wolf, seconded by Commissioner Gamache, to approve the MESB February 9, 2022, Executive Committee agenda. Motion carried.

Roll call for approval of agenda item 2

Name	County/City	Yes	No
Anderson, G.	Isanti		
Atkins, J.	Dakota	X	
Burandt, B.	Sherburne		
Degler, G.	Carver		
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Johnson, A.	Minneapolis	X	
Matascastillo, T.	Ramsey	X	
Miron, F.	Washington	X	
Wolf, T.	Scott	X	

Yea: 8 Nay: 0 Motion passes

3. Oath of Office
Commissioner Fernando administered the Oath of Office to Commissioner Barbara Burandt, Sherburne County.

4. Approval of Minutes
Motion made by Commissioner Miron, seconded by Commissioner Greene to approve the MESB Executive Committee December 8, 2021, minutes. Motion carried.

Roll call for approval of agenda item 4

Name	County/City	Yes	No
Anderson, G.	Isanti		
Atkins, J.	Dakota	X	
Burandt, B.	Sherburne	X	

Degler, G.	Carver		
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Johnson, A.	Minneapolis	X	
Matascastillo, T.	Ramsey	X	
Miron, F.	Washington	X	
Wolf, T.	Scott	X	

Yea: 9 Nay: 0 Motion passes

5. Radio Items

A. Approval of Amendment to Scott County's ARMER Participation Plan

Tracey Fredrick said Scott County requests approval of an amendment to its ARMER participation Plan which allows the relocation of its network backhaul from the current Shakopee site to the Norwood site. This move will connect to its dispatch site and enable redundancy for backup of its network. The Radio TOC recommends approval of the plan amendment.

Motion made by Commissioner Wolf, seconded by Commissioner Matascastillo to approve the amendment to the Scott County ARMER Participation Plan. Motion carried.

Roll call for approval of agenda item 5

Name	County/City	Yes	No
Anderson, G.	Isanti		
Atkins, J.	Dakota	X	
Burandt, B.	Sherburne	X	
Degler, G.	Carver		
Fernando, I.	Hennepin	X	
Gamache, M.	Anoka	X	
Greene, R	Chisago	X	
Johnson, A.	Minneapolis	X	
Matascastillo, T.	Ramsey	X	
Miron, F.	Washington	X	
Wolf, T.	Scott	X	

Yea: 9 Nay: 0 Motion passes

6. 9-1-1 Items – None

7. EMS Items – None

8. Administrative Items

A. Discussion: Legislative Initiative for ARMER Encryption

Jill Rohret said because there is a budget surplus and a large infusion federal money into the state, bills will likely be introduced in this legislative session requesting funding for public safety and communications. ARMER system administrators have been discussing whether or not more encryption should be added to the system. Some counties have already implemented encryption for their law enforcement talkgroups, and other counties are in process of implementing encryption. There are different levels of encryption, and they are not necessarily compatible with one another and implementing encryption can be costly.

Rohret noted that the after-action reports from the 2020 civil unrest, and again during the 2021 civil unrest related to the Daunte Wright shooting stated there were incidents where some individuals tracked communications occurring on non-encrypted channels.

Rohret said last fall the Bureau of Criminal Apprehension (BCA) sent out some new FBI rules regarding how criminal justice information may be communicated over the air. These new rules require the use of Advanced Encryption Standard (AES) encrypted resources to transmit this information. AES is the highest level of encryption and is not widely used in Minnesota. Law enforcement and PSAPs would be affected as they would both be using an encrypted talkgroup to transmit that information. Additionally, there are times where fire and EMS personnel, and sometimes public works personnel, may need to communicate with law enforcement in an encrypted manner.

Rohret said the release of the rules caused concern so few Minnesota law enforcement agencies could comply. ECN held a state-wide meeting in January at which representatives from the BCA said they had not been aware that this would be difficult to implement, particularly state-wide, and they would not audit law enforcement agencies at this time.

Rohret said since there is a surplus of federal dollars there is a push to take some action and have the legislature introduce some bills to receive some of the funding to help enable the encryption across the state. This effort is led by Micah Myers, the Chair of the SECB Finance Committee; the committee meets tomorrow, and it is hoped it will determine an estimated dollar figure for this effort. There is not a good estimate now because it is not known if the mobiles and portables will need to be replaced or just updated with software to achieve this encryption. It is also possible there would be some network infrastructure costs.

Rohret asked members if they would broadly support this effort. It is thought that the funding would be in a grant format, perhaps with matching costs.

Commissioner Fernando asked if the committee was being asked to support both the concept and the manner of funding.

Rohret said yes, it is important that the MESB had a voice to take back to the SECB Finance Committee and the MESB lobbyists.

Commissioner Miron said obviously these are FBI rules and wondered if there might be federal funding. These unfunded federal mandates are certainly frustrating.

Rohret said at this time there has not been a notification for any federal funding related to this requirement. Federal grant dollars have been in decline over the years.

Commissioner Miron said maybe the counties could unify to seek out by way of lobbyists to make the cost known.

Commissioner Gamache asked if this has been presented to or approved by the Governor and if there is a ballpark cost estimate.

Rohret said that it has not gone through the Governor's approval process yet. Because of that the Department of Public Safety cannot actively lobby for this effort, which will leave lobbying efforts primarily to the Minnesota Sheriffs' Association or the Association of Minnesota Counties. She said it is hoped that the SECB Finance Committee will have an estimate tomorrow. There was a bill introduced for $250 million for radios and another may be introduced which would provide

$400 million for firefighter communications, but it does not necessarily focus on the encryption piece.

Fredrick said the metro region included a grant request for 2022 grants of $600,000.00 for this effort. She noted that that amount was likely a low amount. She stated the metro region's grant request was denied.

Commissioner Atkins said he spoke with Dakota County staff and was given a conservative estimate of $500,000.00 for Dakota County. There would also be additional JPA costs to Dakota County for their member cities. Atkins said he felt the lobbyists should now be actively involved.

Commissioner Fernando said everyone agrees these unfunded mandates are very tiresome. She asked the committee if it agreed that it is preferred the MESB take a position.

Rohret said she will draft a letter for the MESB March board meeting to get to our federal lobbyists. If we wait for every law enforcement agency and counties to get this in their capital budget, it is probably not an exaggeration to say it could take 10 years. The Hewitt bill would provide $250 million with a 5% match. There could be a $400 million bill for radios for volunteer firefighters.

Margaret Vesel said there is a need to perhaps right size the cost and the legislature could come up with a formula and will know more after February 28 budget forecast is announced. There is a forecasted $9 billion surplus.

Commissioner Matascastillo asked what Vesel has heard about what will be moved forward, spent and appropriated.

Vesel said the approximately $8 billion surplus does not include the $1.5 billion which was set aside from the ARPA funds. There is talk of a House bonding bill. It will be difficult to pass because a majority 81 votes is needed from the House and 41 votes from the Senate. Vesel thinks they will try and pass a large cash bill perhaps in the ballpark of $2 billion dollars.

9. Old Business – None

10. New Business – None

11. Adjournment
The meeting adjourned at 10:39 a.m.

Civil Unrest AAR
Recommendation Status
Updated 2/25/2022

Tracking #	Recommendation	Person/Agency Responsible	Status
1	Establish the governance structure, on-going funding model, training, and procedures to deploy and utilize 9-1-1 call workload sharing between cooperating .	PSAPs/Cities/Counties/MESB	10/20/2021 - The RFP was reposted in September. Two proposals were received in response to the posted RFP that was due October 15th. Selection of consultant for RFP has been completed by workgroup RFP evaluation team, and the action sheet has been completed to present to the Board at the November 10th meeting recommending award to the selected consultant. 12/16/2021 - Winbourne Consulting was selected as the vendor to complete the CAD2CAD RFP for the MESB region and to create funding and operational plans for implementation. An official kick-off meeting is scheduled on 12/17/2021 with the WG and we will be asking the Board to approve the purchase of a "Lessons Learned" document created by Winborne giving us insights to their many CAD2CAD projects throughout the nation. 2/25/2022 - The workgroup had an all-day meeting with Winbourne on Feb 15th to discuss governance and finance models and some general goals for the project to list in the RFP. Winbourne will be providing the workgroup updated governance, technical requirements, draft statement of work, and draft investment summary documents that will be reviewed on March 25th.
2	Identify and implement workload sharing applications that will permit 9-1-1 calls to overflow to neighboring ECCs which have agreed to work together cooperatively, permitting calls 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.	PSAPs/Cities/Counties/MESB	(combined with #1)
3	Identify and implement workload sharing applications that will 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.	PSAPs/Cities/Counties/MESB	(combined with #1)

4	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.	9-1-1 TOC/MESB	08/24/21 The Moetivations training was completed in June. At the August 911 TOC meeting the committee decided to request additional grant funding to continue to develop telecommunicator resiliency programs at each of the regional PSAPs in 2022. 10/20/2021 - Additional grant money will be available for additional resiliency training. Requirements need to be formed for solicitation of a vendor to produce and present training material for this new round of grant funding.
5	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).	PSAPS/Cities/Counties/Other agencies	06/24/21 - The recommendation to not terminate community tip lines at ECCs was included in the Operation Safety Net (OSN) planning in February and March. An after action report is now being prepared regarding the OSN planning and implementation. The information from that report may become the basis for the development of a regional standard that addresses the use of tip lines that do not interfere in ongoing ECC operations. OSN AAR did not address tip lines
6	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.	9-1-1 TOC/PSAPs/MESB	10/20/21 - Discussion began at the September 2021 9-1-1 TOC Meeting
7	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.	CRTF/Duty Officer/Statewide Training	INTD/INCM training was provided in March 2021 specifically directed towards those who may be called in for response to Civil Unrest. Many Metro telecommunicator were also in attendance at a FEMA INTD course held in mid-June 2021. A metro-specific telecommunicator class is being developed currently. Several Metro CRTF members are attending a statewide drill held in August 2021 to get experience with emergent activities. Additionally, 3 metro members have been invited to participate in a COML course in Fall 2021. Additional space in an early 2022 COML course is also available. Two new Metro COML trainers were trained in November 2021.

8	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). ii. Include State Duty Officer training to assist in understanding the communications resources and processes to be utilized as part of the ICS structure.	CRTF/Duty Officer	As of March 2021, the Duty Officer position at BCA has been identified to only be for use in statewide emergencies in which a state agency is impacted; it will no longer be directing activities for regional activities. DPS-ECN has come up with a process to contact the SWIC for such emergencies. As such, this line item may be deleted, or changed to reflect the new process.
9	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. b. Build relationships between the CRTF and agency command staff.	CRTF/Metro EM Agencies	CRTF Steering Team has begun having internal meetings in their own entities, doing more outreach to partner entities.
10	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. 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.	MESB, HSEM	Pre-planning for the spring 2021 trial seemed to go more smoothly. There is still some room for opportunity with the other upcoming trials. 2/25/2022 - Operation Safety Net plans were modified and used for the Kimberly Potter trial and the St Paul federal trial of the three officers involved in the George Floyd incident.
11	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. d. Include COMU representatives at the MACC at the beginning of MACC operations.	CRTF/Duty Officer/MACC	Pre-planning for the spring 2021 trial (Operation Safety Net) seemed to go more smoothly. There is still some room for opportunity with the other upcoming trials.

12	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.	Radio TOC Standards Workgroup/Statewide Standards Workgroup	MESB standards workgroup and state standards workgroup discussed in November 2020. System limitations make this difficult to do. Have also brought forward to State standards planning; still in discussion.
13	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.		Videos posted to MESB site in October 2020. On-going training statewide being discussed.
14	Create better advertisement of available resources, such as equipment caches, CRTF, etc. at a state level.	Duty Officer/MACC/CRTF	As of March 2021, current SWIC is aware of resources and how to deploy. See also #8.
15	Identify regional, or statewide, EOC or MACC locations that can be properly equipped in advance.	HSEM	Not started
16	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.	CRTF	Metro has these common forms on the ARMER standards page and the CRTF page. Current method for distribution of region-wide ICS205s is to send through the Radio Services Coordinator.
17	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.	Radio TOC Standards Workgroup/CRTF	Updated Large Event Communications Standard 3.21.0; approved by MESB Board September 2020. Approved new event standard July 2021. **Complete**.

18	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.	CRTF/Duty Officer/Metro EM Agencies	**See #8.**
19	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. b. Build relationships between the CRTF and agency command staff.	CRTF/Agency Command Staff	**See #9**
20	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. 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.	CRTF/Metro COML	This concern is also part of the on-going training mentioned in other areas of recommendation. Videos and documents have been added to the MESB website as of October 2020, and on-going training at a state level is being discussed in several workgroups.

21	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. 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.)	MESB	**Complete, October 2020**
22	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.	Regional Emergency Communications Boards	Not started
23	Establish a timeline for requiring encryption-capable radios for response agencies within the metro area.	Cities/Counties/Radio TOC/MESB/Regional Emergency Communications Boards	Change Management group has begun meeting; May 2021 - Encryption Best Practices guide has been approved and posted.

METROPOLITAN EMERGENCY SERVICES BOARD

Meeting Date: March 9, 2022
Agenda Item: 4A. Approval of Amendment to U of M Participation Plan
Presenter: Fredrick

RECOMMENDATION

The Radio Technical Operations Committee recommends the Board approve the amendment to the University of Minnesota's ARMER participation plan.

BACKGROUND

The University of Minnesota received approval of its original ARMER participation plan from the Metropolitan Radio Board in May 2004 and its cooperative agreement with the Board and MnDOT was executed in March 2005.

ISSUES & CONCERNS

The University of Minnesota requests approval an amendment to its ARMER participation plan to add one MCC7500-VPM console, four new talkgroup IDs, and a CRYPTR module.

The addition of the MCC7500-VPM console will assist with increased call traffic the University is experiencing. This console will have encryption capabilities included. With this addition, the University will have eight console positions.

The four additional talkgroup IDs will be used during the planned migration of University radios to being encryption-capable. After the migration is complete, the original allocated talkgroups that were not encryption capable will be deleted and returned to the unassigned pool. Overall, this will be a net-zero increase once the project is complete.

The CRYPTR module is being added to support the migration to encryption-capable resources.

FINANCIAL IMPACT

None to MESB.

MOTION BY:
SECONDED BY:
MOTION:

PASS/FAIL

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Department of Public Safety
Emergency Communications

University Office Plaza – Suite 123
2221 University Avenue S.E.
Minneapolis, MN 55414
Office: (612)624-7828

February 14, 2022

Tracey J. Fredrick, MA
Radio Services Coordinator
Metropolitan Emergency Services Board
2099 University Avenue West
St. Paul, MN 55104

ARMER Participation Plan Amendment

Dear Tracey,

The University of Minnesota Public Safety Department is requesting approval for the following modifications to our ARMER participation plan:

1. The University of Minnesota Twin Cities Police Dispatch Center is planning to add an additional MCC7500-VPM console with encryption to support increased call traffic. This will bring our MCC7500 position total to 8. Currently, 6 (six) of our consoles are direct connected consoles, and one is a laptop connected through an ARMER-approved firewall. This new position will increase our direct-connected console count to 7 (seven).

2. The University is migrating to 100% encrypted law radio traffic by 2Q 2022. We currently have 5 talkgroups to support law operations. One of the five is already encrypted. To facilitate the migration, we are asking for 4 new talkgroup IDs to support migration to encrypted talkgroups. Once we migrate all law radios and consoles to these new encrypted talkgroups, we will delete the "old" clear talkgroups and place them back in the unassigned pool. This will be a zero net-gain of talkgroup counts once we complete our migration.

3. To support the migration to encrypted radio calls, we also will be adding a CRYPTR module to each of our 2 MCC7500E laptops. This is part of our encryption migration project. No system level resources will be used to implement this task.

Sincerely,

Dave Theis
Radio System Administrator
(320) 423-8828
dtheis@umn.edu

METROPOLITAN EMERGENCY SERVICES BOARD

Meeting Date: March 9, 2022
Agenda Item: 4B. Approval of Amendment to Scott County Participation Plan
Presenter: Fredrick

RECOMMENDATION
The Executive Committee recommends the Board approve the amendment to the Scott County ARMER participation plan.

BACKGROUND
Scott County has been an ARMER participant since 2005. It currently utilizes a full ARMER participation plan with DPS-ECN.

ISSUES & CONCERNS
Scott County requests approval of an amendment to its ARMER participation plan to relocate its network backhaul to the Norwood site from the Shakopee site.

MnDOT allocated to Scott County dark fiber pairs on the Carver County ring for the Norwood site. This connection will provide redundancy for several Scott County sites and the PSAP.

MnDOT reviewed this plan and supports it, pending MESB approval.

FINANCIAL IMPACT
None to MESB.

MOTION BY:
SECONDED BY:
MOTION:

PASS/FAIL

December 6, 2021

Tracey Fredrick
Metropolitan Emergency Services Board
2099 University Avenue West
St. Paul, MN 55104

ARMER Participation Plan Amendment

Dear Tracey,

Scott County is requesting approval for the following modification to our ARMER participation plan.

Scott County has been allocated a pair of dark fiber on the Carver County fiber ring to the MNDOT Norwood site. This dark fiber will provide redundancy for 5 Scott County subsites and Dispatch site. The Carver County fiber will interface at the Scott County LEC and Shakopee site.

With approval, Scott County request a network change for 6 T1 circuits currently interface at the Shakopee site be relocated to drop at the Norwood site on the south loop ARMER backhaul. MNDOT has approved this plan change on the ARMER backhaul route.

Sincerely,
Nick Schatz
Radio System Administrator
(952) 496-8889
nschatz@co.scott.mn.us

METROPOLITAN EMERGENCY SERVICES BOARD

Meeting Date: March 9, 2022
Agenda Item: 5A. Acceptance of NG9-1-1 Transition Strategy Document & NG9-1-1 System Assessment Report
Presenter: Mihelich

RECOMMENDATION
Staff recommend the Board accept the NG9-1-1 Transition Strategy document and the NG9-1-1 System Assessment Report, which were drafted by MESB consultants from 911 Authority.

BACKGROUND
MESB executed a contract with 911 Authority to assist with the transition from Enhanced 9-1-1 (E9-1-1) to Next Generation 9-1-1 (NG9-1-1), through the State of Minnesota's Request for Proposal (RFP) process. The 911 Authority contract requires the completion of three tasks as project deliverables:

- Task 1 – Develop an MESB NG9-1-1 Transition Strategy
- Task 2 – Assess the current MESB 9-1-1 System
- Task 3 – Develop an MESB NG9-1-1 Transition Plan

ISSUES & CONCERNS
911 Authority has completed tasks 1 & 2 and finalized the documents related to both. The first document, the NG9-1-1 Transition Strategy document, discusses items to be considered in a transition to NG9-1-1 from E9-1-1 services. The second document, the NG9-1-1 System Assessment Report details where metro region PSAPs are in terms of readiness to transition to NG9-1-1.

The 9-1-1 Technical Operations Committee reviewed both documents and provided feedback for them.

The third document required in the 911 Authority contract, the NG9-1-1 transition plan, is currently in process.

FINANCIAL IMPACT
None to MESB.

MOTION BY:
SECONDED BY:
MOTION:

PASS/FAIL

MESB NG9-1-1 Transition Strategy Document

11/15/2021

Prepared by

911 Authority

Connecting Public Safety with Technology

Contents

I. Executive Summary

Transition Strategy Context/Background

The Metropolitan Emergency Services Board (MESB) supports public safety for the residents of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, and Washington Counties, and the City of Minneapolis. This support includes oversight and management of the metropolitan portion of the ARMER radio system; oversight and management of the regional 9-1-1 system; and coordination of the regional EMS system.

This regional approach to planning and supporting Public Safety Answering Points (PSAPs), radio system users, and EMS providers ensures optimal response to emergencies and large-scale public safety events occurring within the metropolitan region.

The MESB provides regional leadership, planning, coordination, and support for public safety communications and EMS providers, resulting in efficiencies for local governments and consistent public safety response within the metropolitan region.

The MESB works closely with the Minnesota Department of Public Safety, Division of Emergency Communication Networks (ECN) to not only manage the current E9-1-1 system, but to plan and implement Next Generation 9-1-1 (NG9-1-1). NG9-1-1 is Internet protocol based and will provide increased functionality for 9-1-1 callers and Minnesota's public safety answering points, which answer 9-1-1 calls and dispatch public safety resources in response to those calls.

II. MESB NG9-1-1 Transition Goals and Objectives

1. The MESB desires a planned, diligent, and seamless transition from the current 9-1-1 system serving the MESB PSAPs to fully NG9-1-1 capable and compliant systems supporting the MESB PSAPs.

2. The MESB requires reliable and resilient NG9-1-1 service and will leverage NG9-1-1 standards-based technology to support the eighteen primary and six secondary PSAPs serving the citizens of and visitors to the Minneapolis/St. Paul metropolitan area.

3. The MESB, in cooperation with Minnesota PSAPs and ECN, seeks to leverage common Minnesota NG9-1-1 operational, technical, and functional requirements in the procurement of any future NG9-1-1 systems to continue the long history of public safety interoperability across Minnesota.

4. The MESB maintains a focus on offering PSAPs better continuity-of-operations (COOP) options as well as enabling resource sharing for the PSAPs that are interested in working together.

5. The MESB works with ECN to procure an NG9-1-1 network with enhanced support for the delivery of shared/hosted and cloud-based applications for PSAPs. (e.g. hosted call handling, CAD, CAD-to-CAD interoperability, logging/recording)

6. The MESB sees the local, authoritative data maintained by its counties as a strategic asset for its PSAPs and seeks to create data processes that allow the region to effectively use and maintain high-quality geospatial data to support NG9-1-1.

7. The MESB requires a single-point of contact for PSAPs to report 9-1-1 issues and problems to have resolution proficiently coordinated among vendors and providers.

8. The MESB works with the PSAPs in planning for the transition of their PSAP 9-1-1 technology to NG9-1-1 capable systems needed to operate on a fully standards compliant NG9-1-1 network.

9. The MESB, in partnership with Minnesota PSAPs and ECN, seeks to leverage common, statewide 9-1-1 funding and grant opportunities in the purchase and deployment of NG9-1-1 systems.

III. NG9-1-1 Transition Scope

Relevant Legislative Definitions

Proposed changes to Chapter 403 of the Minnesota Statute, 911 Emergency and Public Safety Communications, include updated terminology in 403.2 that is referred to throughout this plan. Although there are many additions to 403.02 Definitions, the list below reflects those pertinent to this document.

1. **911 network.** "911 network" means (1) a legacy telecommunications network that supports basic and enhanced 911 service, or (2) the ESInet that is used for 911 calls, that can be shared by all public safety answering points, and that provides the IP transport infrastructure upon which independent public safety application platforms and core functional processes can be deployed, including, but not limited to, those necessary for providing next generation 911 service capability. A network may be constructed from a mix of dedicated and shared facilities and may be interconnected at local, regional, state, national and international levels.
2. **911 system**. "911 system" means a coordinated system of technologies, networks, hardware, and software applications that a PSAP must procure and maintain in order to connect to the state 911 network and provide 911 services.
3. **911 service**. "911 service" means the emergency response service a public safety answering point provides as a result of processing 911 calls through their 911 system
4. **Emergency Communications Network Service Provider** (**ECNSP**). "Emergency Communications Network Service Provider (ECNSP)" means a service provider, determined by the commissioner to be capable of providing effective and efficient components of the 911 network or its management, that provides or manages all or portions of the statewide 911 emergency communications network. The ECNSP is the entity or entities that the state contracts with to provide facilities and services associated with operating and maintaining the Minnesota statewide 911 network.
5. **Emergency Services Internet (ESInet)** "ESInet" means a network which is Internet Protocol-based and multi-purpose in supporting local, regional, and national public safety communications services in addition to 911. The ESInet is comprised of 3 network components: ingress network, NGCS and egress network.

NG9-1-1 Transition Elements

There are three (3) primary points of transition that must be addressed in an NG9-1-1 transition strategy Ingress (getting the Legacy and IP 9-1-1 call traffic into the NG9-1-1 network and systems), Core (anchoring, manipulating, and distributing the NG9-1-1 call traffic) and Egress (getting the NG9-1-1 call traffic routed to the PSAP in a format the PSAP can use). These three areas each have technical, operational, and administrative considerations that will be addressed in an end-to-end NG9-1-1 strategy for a successful transition of the MESB.

Along with addressing Ingress, Core and Egress, the local PSAPs will need to take the responsibility for updating the current technologies used in their operations to be NG9-1-1 compliant.

The MESB has identified the following elements for transition to NG9-1-1:

- 9-1-1 call origination network (ingress)
    - The ingress network is currently being transitioned under contract with Inteliquent and requires the MESB and the MESB PSAPs to coordinate with Inteliquent Inc.
    - Additional ingress transition elements, not covered by the current contract with Inteliquent Inc., may need to be addressed with the transition to a NGCS core.
- 9-1-1 call routing functions (core)
- 9-1-1 call database functions (core)
- 9-1-1 call delivery network to the PSAPs (egress)
- 9-1-1 network support and monitoring (all)
- 9-1-1 network logging and reporting (all)
- 9-1-1 network disaster recovery and continuity of operations (all)
- 9-1-1 PSAP system technology migrations and updates (egress)

A visual representation adding additional elements for consideration in the transition to NG9-1-1 are provided in the diagram below.

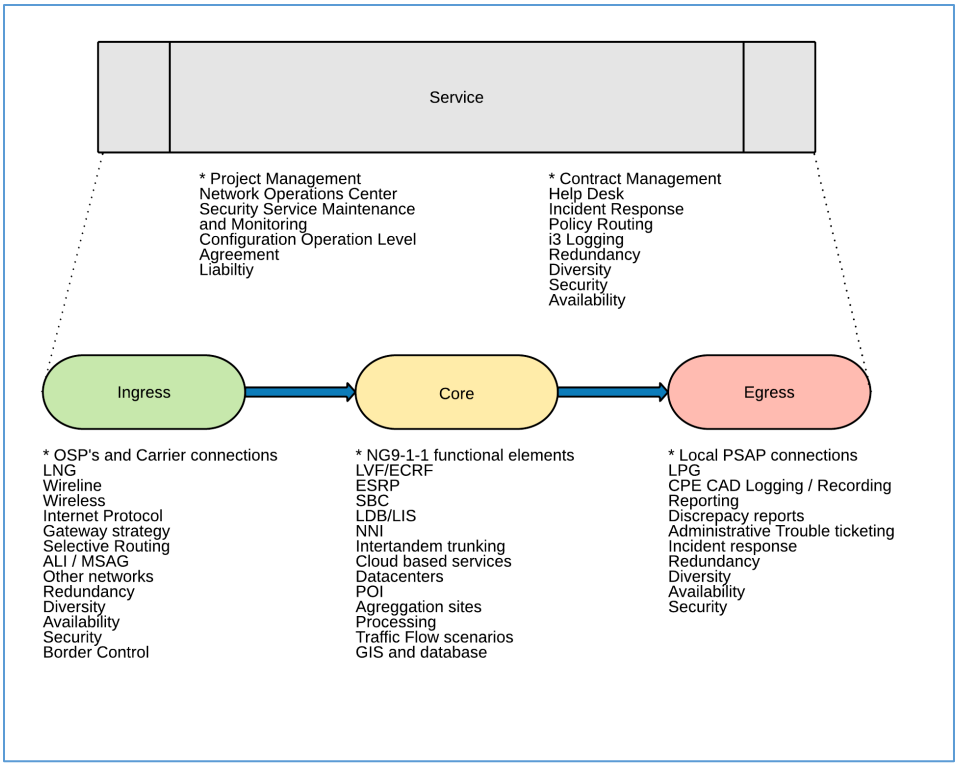


Figure 1 - NG9-1-1 Transitional Elements

NG9-1-1 Transition Milestones and Timelines

The milestones presented in this section are not always completed in a serial or consecutive manner. For example, once the ingress ESInet is implemented, the wireless transition and the database transition can begin, in a parallel path. Subsequently, the selective routing and wireline transition can begin, in a parallel path.

Transition Milestones	Definition
Milestone 1	NG9-1-1 Egress ESInet transition
Milestone 2	NG9-1-1 Core Services
Milestone 3	MESB PSAP network cutover and transition
Milestone 4	Legacy 9-1-1 ALI Database transition
Milestone 5	Originating Service Provider (ingress) transition – Wireless Carriers
Milestone 6	PSAP technology transition
Milestone 7	NG9-1-1 Database transition (location-based routing)
Milestone 8	Wireline carriers and Selective Router transition
Milestone 9	Monitoring, Support, and Reporting

The diagram below provides a description of the transition roadmap, along with the parallel migrations that will take place.

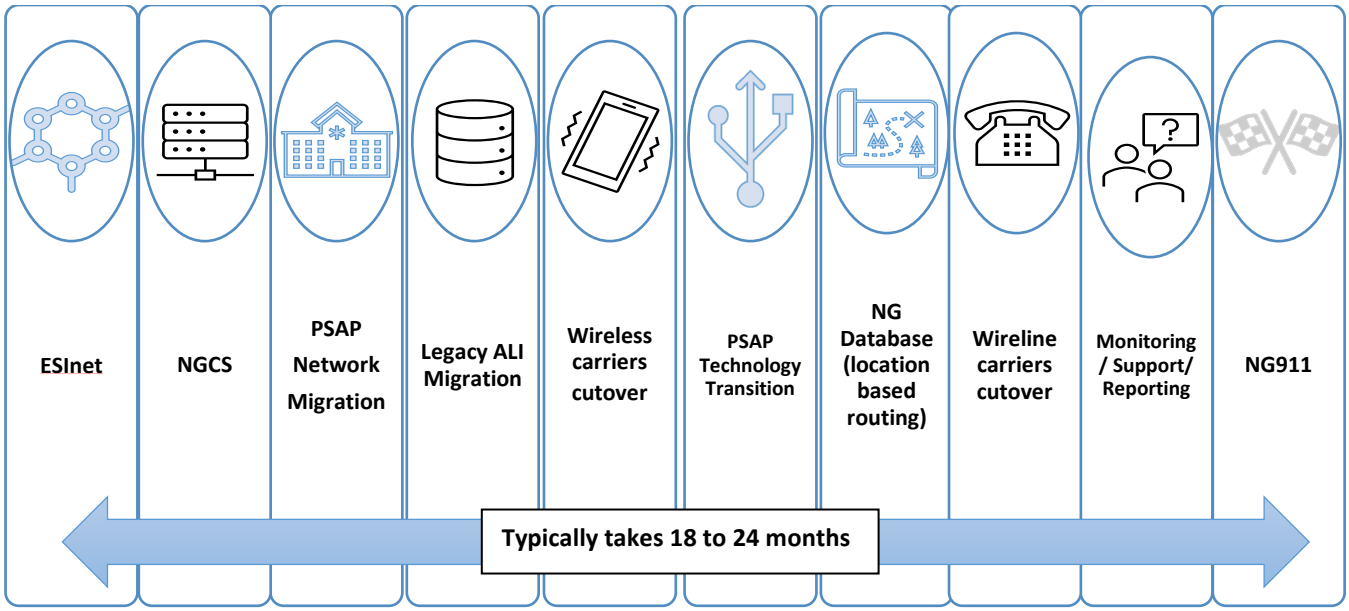


Figure 2 - NG9-1-1 Transition Milestones

The transition from Legacy 9-1-1 services to NG9-1-1 will be completed in a phased approach to allow PSAPs to use the ESInet and NG core services as they are implemented. The scope of transition is defined by the MESB to establish the strategic direction for migrating to NG9-1-1. The elements presented in the scope represent the goals for each item during migration. In the context presented here, the assumption is for the PSAPs to gain the benefit of NG9-1-1 by transitioning specific call types, e.g. wireless, onto the ESInet initially, then gradually continuing to add applications and services to the ESInet over time.

Transition Roles and Responsibilities in NG9-1-1

MESB

The MESB will provide the guidance and framework for ensuring that call delivery to each PSAP will meet operational requirements. In addition, the MESB will be instrumental in providing MESB PSAPs with implementation oversight and project management of the configuration and operation of ESInet and NG core services. In this capacity, the MESB will maintain a focus on call delivery to ensure that MESB PSAPs will be able to meet their requirements once the network is fully deployed.

The transition of MESB PSAPs to a new NG9-1-1 network will be managed through additional documented practices and procedures. During the transition, the MESB will:

- Support MESB PSAPs in coordinating the implementation of and transition to NG9-1-1.
- Assist PSAPs by coordinating with NG9-1-1 Emergency Communications Network Service Provider (ECNSP) to ensure that guidelines and best practices will be followed during all transition and implementation activities.
- Support MESB PSAPs as 9-1-1 system changes occur during the transition to NG9-1-1 by applying established change management process, practices and procedures in order to plan for and mitigate any operational disruption during the transition to NG9-1-1.
- Support the MESB 9-1-1 Technical Operations Committee (TOC) in the engagement of the MESB stakeholders in the planning and implementation of the transition to NG9-1-1.

- Assist PSAPs/counties in meeting NG9-1-1 core services data requirements and coordinating the transition of legacy MSAG/ALI to NG9-1-1 data management processes.
- Assist PSAPs in ensuring that quality assurance and quality control measures performed by the ECNSP are met for all components of the NG9-1-1 network and services.
- Establish a baseline for connectivity among PSAPs.

Metro Region PSAPs

The metro region PSAPs will be the end users of the NG9-1-1 network. In this user role, each PSAP will be a stakeholder and will collaborate with the MESB at various stages of transition. PSAPs will be responsible for ensuring that their requirements are communicated such that the NG9-1-1 network is operationally focused on their mission. PSAPs will be responsible for engaging with their county GIS support organization(s) to maintain quality geospatial data required for the operation of the NG9-1-1 network. PSAPs must coordinate with the MESB to configure changes to the NG9-1-1 network. PSAPs will be accountable to provide the information required by the ECNSP when they begin an upgrade or replacement of PSAP applications that affect call delivery or any other applications that are utilizing the NG9-1-1 network for connectivity. During the transition, and on an on-going basis, PSAPs must report issues with call delivery, routing, and location information.

During the transition Metro Region PSAPs will:

- Work individually and collectively with the MESB to plan, schedule and execute an orderly transition to NG9-1-1
- Be responsive to requests for information and input prior to and during the transition
- Be engaged stakeholders that participate in the transition planning process and are vested in the outcomes for the region
- Champion PSAP operational requirements to drive the technology decisions made in the transition to NG9-1-1
- Communicate plans and activities that could impact the operation of the PSAP NG9-1-1 systems or the NG9-1-1 network. Examples might include buying a new CAD system or moving into a new building

NG9-1-1 ECNSP(s)

The NG9-1-1 ECNSP(s) will be required to deliver a NG9-1-1 network that meets the technical specifications of the MESB, which will be developed in conjunction with the PSAPs. The ECNSP(s) will be required to support the transition of MESB PSAPs from legacy to NG9-1-1 and for maintaining the NG9-1-1 network to ensure that 9-1-1 service is available 99.999 percent of the time.

During the transition, the ECNSP(s) will:

- Coordinate with the MESB to plan, schedule and execute an orderly transition to NG9-1-1
- Work individually and collectively with MESB PSAPs throughout the transition
- Migrate and cutover individual MESB PSAPs from the current network to the new NG9-1-1 network
- Transition location data from current processes and platforms to those used for NG9-1-1, coordinating with originating service providers, as well as MESB and its PSAPs
- Coordinate and facilitate changes at the PSAP related to the operation of the NG9-1-1 network
- Provide 24x7x365 operational support to MESB PSAPs for the NG9-1-1 network

The diagram below provides a visual representation of the roles and responsibilities involved in the migration to NG9-1-1.

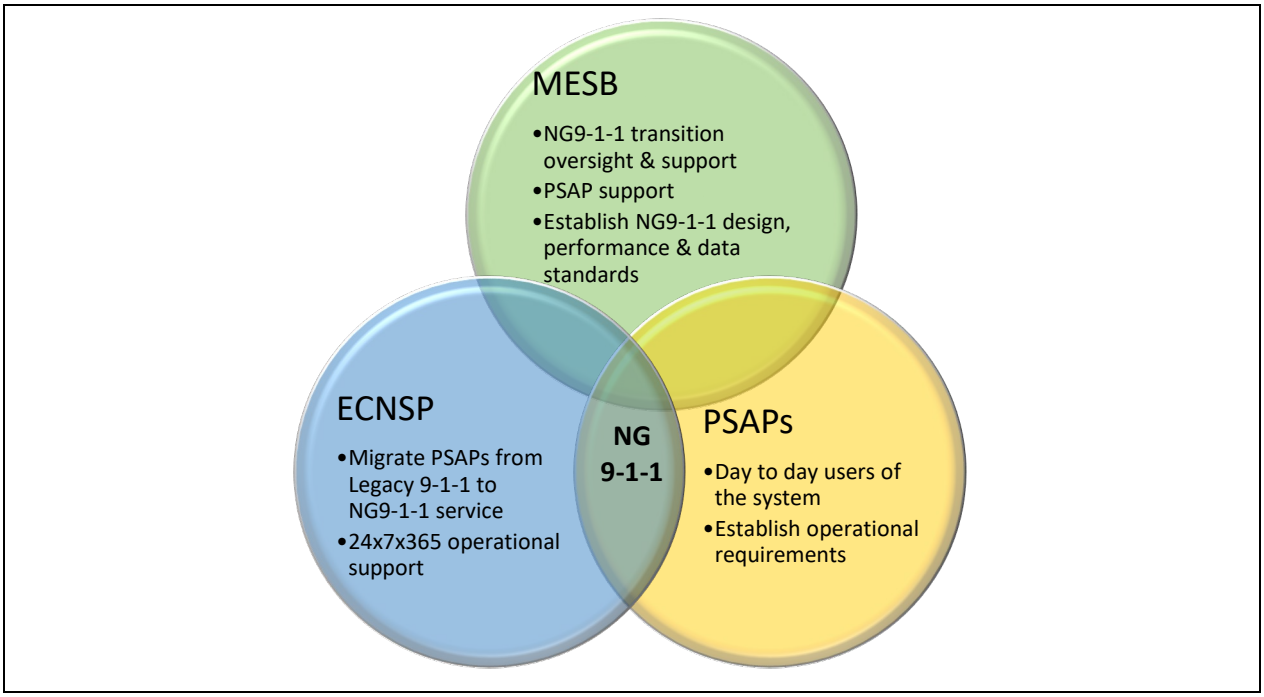


Figure 3 - NG9-1-1 Transition Roles and Responsibilities Diagram

Recommended Next Steps

The purpose of this document is to capture the vision of the MESB as it relates to the migration of the metro PSAPs to a fully operational NG9-1-1 network to the metro area. This document is a high-level communication document that requires additional action and activity to achieve the strategic vision provided here. The items listed below, some of which are in progress, are designed to step the MESB and the metro PSAPs from the vision and communication stage of the NG9-1-1 strategy to concrete plans and actions that support a sustainable program for years to come. The recommended next steps are:

1. Conduct a PSAP survey to gather current technical and operational data to inform future NG9-1-1 requirements of the metro PSAPs
2. Establish the technical NG9-1-1 readiness of each metro PSAP supported by the MESB
3. Coordinate with ECN on the procurement of 9-1-1 networks supporting the MESB PSAPs
4. Develop a detailed MESB NG9-1-1 Transition Plan to focus the resources of the MESB by defining critical sequencing and interdependencies during the migration to NG9-1-1 at the PSAPs over the next three to five years.

- Nothing Follows -

NG9-1-1 System Assessment Report

FINAL

02/02/2022

submitted by

911 Authority

Connecting Public Safety with Technology

Executive Summary

The Metropolitan Emergency Services Board (MESB) supports public safety for the residents of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, and Washington Counties, and the City of Minneapolis. This support includes oversight and management of the metropolitan portion of the ARMER radio system; oversight and management of the regional 9-1-1 system; and coordination of the regional Emergency Medical Services (EMS) providers. This regional approach to planning and supporting Public Safety Answering Points (PSAPs), radio system users, and EMS providers ensures optimal response to emergencies and large-scale public safety events occurring within the metropolitan region. The MESB works closely with the Minnesota Department of Public Safety, Division of Emergency Communication Networks (ECN) to not only manage the current E9-1-1 system, but also plan and implement Next Generation 9-1-1 (NG9-1-1).

In preparation for the planned transition to NG9-1-1 in 2022 and beyond, the MESB commissioned this assessment report of the MESB regional PSAPs to provide a current analysis of 9-1-1 and PSAP operations across the MESB region. The crucial information collected and analyzed for this report is necessary for the MESB and the MESB PSAPs to make informed decisions related to the PSAP transition from legacy 9-1-1 technology to NG9-1-1 technology and operations.

A key objective of this report is to establish a 9-1-1 technology baseline to use for future plans and inform specific MESB NG9-1-1 RFP requirements. The survey data gathered here will also be used to guide the completion of the MESB NG9-1-1 Transition Plan.

Regional response to the survey was outstanding and the support of the PSAP personnel in collecting and submitting the survey data was met with enthusiasm. We would like to acknowledge the direct support of the MESB staff, the MESB 9-1-1 Technical Operations Committee and the MESB regional PSAPs for their contributions to this assessment report.

Highlights of the information collected from the MESB regional PSAPs includes:

9-1-1 in the MESB Region: Quick Facts

PSAPs of the MESB Region	19 Primary, 6 Secondary
Number of 9-1-1 Call Answering Positions	**400**
Number of Staff Supporting 9-1-1 across the region	**940**
First Responder Agencies served by the region (Fire, Police, EMS, includes some duplication)	**261**
Annual 9-1-1 Calls processed in the region (approximate as reported)	**2.6M**
Population served by MESB PSAPs (approximate)	**3.7M**

Findings and Conclusions

- The data collected for this report establishes an excellent foundation for the analysis presented in this report. While the data represent a snapshot in time and the accuracy of specific information will decline over time, the level of information is appropriate, valid, and necessary to inform an orderly transition to NG9-1-1 in the MESB region
- The anticipated level of upgrades to systems and equipment necessary for MESB PSAPs to transition to full NG9-1-1, i3 operating capability is low to moderate from a PSAP cost, training and major equipment change out perspective. Assuming a transition to full NG9-1-1 capability occurs within the next 12 to 24 months
- All MESB PSAPs will require some level of upgrade to transition away from the current 9-1-1 system provided under contract with Lumen to a system that fully supports the NENA NG9-1-1 i3 specification
- Staffing in a NG9-1-1 environment will require different skill sets like cybersecurity and networking or social media and texting. Personnel costs could be impacted by specialized skill sets or from the increased reliance on accurate data like GIS which will require an increase in maintenance activities.
- The MESB PSAPs are well prepared for the transition to NG9-1-1 as evidenced by the level of investment in technology, applications, resources and funding committed to public safety across the MESB region in addition to specific 9-1-1 funding from ECN
- As more integration occurs across the MESB region on applications like CAD and CHE the more efficient the MESB PSAPs become operating as one logical entity at the systems level. Examples include CAD to CAD interoperability, hosted Call Handling Equipment and alerting applications
- The MESB PSAPs will benefit from a diverse, scalable, redundant NG9-1-1 system that delivers data and information about and from emergency events (calls, data and supplemental information)
    - The NG9-1-1 system will allow for increased situational awareness and enhance the prioritization of events based upon the additional intelligence delivered with the call
- Once the NG9-1-1 system is operational, the MESB region will have the ability to prepare alternative arrangements, agreements including mutual aid for the PSAPs.
    - Arrangements may be developed that enhance the operational polices of the PSAPs to aid in how each PSAP interoperates and shares information and/or systems where appropriate
- The NG9-1-1 system will provide for a common approach for Cybersecurity across all MESB PSAPs in addition to the current local efforts. This will enhance the ability to recognize, divert or isolate DDoS, TDoS and intrusions that can compromise the entire operation.
- Establishment of a centralized monitoring and reporting capability that can manage all operational

components within the Service Level Agreement (SLA) and maintain integrity across all MESB PSAPS.

- This capability will ensure consistent monitoring and management of the services provided (ESInet, Hosted Call Handling, GIS, Telecommunications, Radio, CAD, Recording, etc.) and quick resolution of any problem or trouble with the associated provider.

-The remainder of this page is intentionally left blank -

1. 9-1-1 Assessment Objectives and Methodology

1.1 PSAP 9-1-1 System Assessment Objectives

NG9-1-1 refers to the ability to transmit, receive, process, transfer, dispatch, use, and store both voice and data (in the form of pictures, videos, text messages, and incident information) associated with a 9-1-1 call or request for emergency assistance. The NG9-1-1 system that will be implemented in the MESB region will contain the same functions of the current system, such as reliability, while providing for greater accessibility, interoperability, and a more efficient use of 9-1-1 resources. NG9-1-1 will enable the transfer of 9-1-1 calls between geographically dispersed PSAPs, will increase sharing of data and resources to improve emergency response, and improve coordination and partnerships within the 9-1-1 community.

The MESB considers the creation of a transition strategy and plan as critical to the success of its NG9-1-1 implementation. This strategy must recognize synergies, dependencies, and constraints of the metro regional 9-1-1 system's existence within the context of a statewide 9-1-1 system.

Along with this transition plan a documented assessment of the current 9-1-1 system for the ten-county metropolitan region was conducted. This assessment provides an in-depth analysis of 9-1-1 and PSAP operations across the MESB region. The crucial information collected and analyzed for this report is necessary for the MESB to make informed decisions related to the PSAP transition from legacy 9-1-1 technology to NG9-1-1 technology and operations.

The primary goals and objectives for conducting an MESB regional 9-1-1 System Assessment are as follows:

1. Survey both Primary and Secondary PSAPs and determine NG9-1-1 readiness
2. Analyze the current equipment and software, as well as changes needed for the transition to NG9-1-1 (including Call Handling Equipment (CHE), servers, workstations, Automatic Number Identification/Automatic Location Identification (ANI/ALI) controllers, Geographic Information Systems (GIS,) Computer Aided Dispatch (CAD), Records Management Systems (RMS), etc.)
3. Identify pending actions or projects that may impact the implementation of NG9-1-1
4. Deliver Final 9-1-1 System Assessment Report

1.2 Assessment Methodology

The methodology for conducting the MESB 9-1-1 System Assessment consisted of the 911 Authority team working in collaboration with MESB staff on the following:

1. Review of existing documentation related to the 9-1-1 operating environment in the MESB region

2. Develop a PSAP survey tool for data collection and report content
3. Manage the collection and distribution of PSAP related data for the report

1.2.1 Review of Existing Documentation

The 911 Authority team reviewed existing documentation and used these documents for comparison throughout the development of this report. Specific documentation included:

- MESB call statistics 2020
- MESB by laws and governance documents
- MESB TOC minutes and meeting packet reviews
- Current statewide NG9-1-1 system RFP

1.2.2 Online PSAP Survey

A PSAP Survey tool was developed and designed with input from the MESB staff. The questions contained in the survey tool primarily focused on PSAP specific information and topics or areas relevant to the assessment report, including:

PSAP Information

- Identify the current inventory of PSAP CHE, CAD, and other PSAP systems to determine NG9-1-1 readiness
- Determine the status of the MESB PSAPs relative to NG9-1-1 readiness and capability
- Identify any other issues related to the implementation of NG9-1-1 service
- Identify current and possible future end-user services and applications that will need to interface with both the current and future NG9-1-1 networks, such as CAD to CAD

PSAP Readiness

- Current status of the PSAPs in the MESB region relative to NG9-1-1 readiness/capability
- Catalog existing equipment and software (CHE, CAD, recorders, etc.)
    - Legacy
    - NG9-1-1 capable or enabled
- GIS capabilities
    - Current and possible future end-user services and applications

The PSAP Survey tool consisted of 45 questions. A draft of the survey was shared with the PSAPs in the MESB region. The final PSAP survey was distributed to the PSAPs on September 15, 2021, with a deadline of October 31, 2021. In total 24 PSAPs responded and provided information for this report. A copy of the survey can be found in **Appendix B** of the report.

2. Current 9-1-1 Infrastructure in the MESB Region

Relevant Background:
The PSAPs of the ten-county MESB region currently participate in a 9-1-1 system operated by Lumen as the 9-1-1 system integrator for the State of MN. The 9-1-1 call routing platform is an IP-selective router operated by Intrado, Inc., Lumen's vendor. The ingress network is currently transitioning to Time Division Multiplex (TDM) and Session Initiation Protocol (SIP) Points of Ingress/Interface (POIs) for Originating Service Provider (OSP) connections to the 9-1-1 network. The ingress network is operated by Inteliquent for aggregation and protocol conversion to support NG9-1-1 core services once they are in place (anticipated in late 2022 or early 2023).

The 9-1-1 traffic-only egress network currently consists of two physically diverse connections to each PSAP and all of the region's PSAPs are connected via Request For Assistance Interface (RFAI) SIP, a proprietary Intrado developed interim protocol (a transitionary protocol to NENA i3). The metro regional Automatic Location Identification (ALI) telephone number record data is currently hosted by Intrado.

The region's Master Street Address Guide (MSAG) is coordinated regionally by the MESB. MESB and its 9-1-1 and GIS partners have been collaboratively engaged in preparing the region's geospatial data for use in NG9-1-1. As a result, significant synchronization of legacy 9-1-1 and NG9-1-1 data has been completed, and regionally aggregated road centerline, address point, PSAP, and response boundary datasets are available for use in an NG9-1-1 data environment.

One of the main goals of the MESB 9-1-1 System Assessment report is to establish a baseline of the current 9-1-1 infrastructure in the MESB region. Using a combination of data collected by the PSAP survey tool, existing program documentation and interviews with various PSAPs, this section of the report provides the detailed analysis of our findings. This section examines the following areas:

1. MESB 9-1-1 System Scope and Size
2. Current 9-1-1 PSAP Operations
3. Current 9-1-1 Call Handling Equipment

2.1 MESB 9-1-1 System Scope and Size

A major component of the MESB 9-1-1 System Assessment is determining the size, scope and scale of 9-1-1 and PSAP operations across the MESB region. For the purposes of the assessment, an examination of the current system and its influence or impact on NG9-1-1 using the following metrics is relevant.

1. PSAPs of the MESB Region
2. Number of 9-1-1 call answering positions
3. Number of staff supporting 9-1-1

4. First Responder agencies served by PSAPs
5. Annual 9-1-1 call information

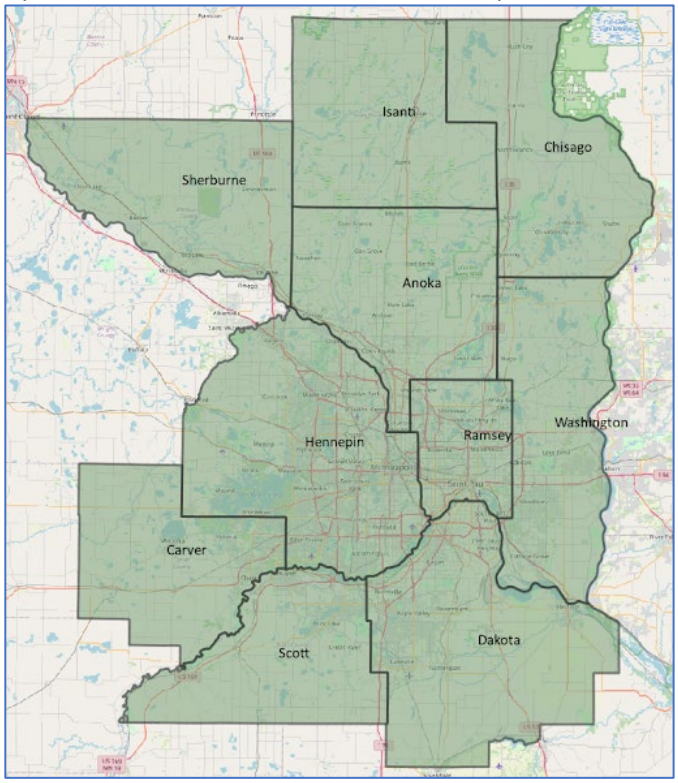
Each of these will be analyzed in the following sections using the PSAP survey data and experiences from other NG9-1-1 implementations. Here are some quick facts related to the scope and size of 9-1-1 in the MESB region as determined by the responses to the PSAP survey.

9-1-1 in the MESB Region – Quick Facts

PSAPs of the MESB Region	19 Primary, 6 Secondary
Number of 9-1-1 Call Answering Positions	**400**
Number of Staff Supporting 9-1-1 across the region	**940**
First Responder Agencies served by the region (Fire, Police, EMS, includes some duplication)	**261**
Annual 9-1-1 Calls processed in the region (approximate as reported)	**2.6M**

2.1.1 PSAPs of the MESB Region

A map displaying the geographic service areas of the MESB PSAPs is provided below.



The MESB supports public safety for the residents of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, and Washington Counties. There are 25 total PSAPs supporting the MESB Region, 19 Primary PSAPs and six Secondary PSAPs.

PSAP Definitions from the NENA Master Glossary (NENA-ADM-000.24-2-21)

PSAP (Public Safety Answering Point)	An entity responsible for receiving 9-1-1 calls and processing those calls according to a specific operational policy.
Primary PSAP:	A PSAP to which 9-1-1 calls are **routed directly** from the 9-1-1 Control Office.
Secondary PSAP:	A PSAP to which 9-1-1 calls are **transferred from** a Primary PSAP.
Wireline Primary / Wireless Secondary	A PSAP which answers landline 9-1-1 calls directly from the CO but gets wireless 9-1-1 calls transferred in from another PSAP (ex. Department of Defense PSAPs are often configured this way)
Wireless Primary / Wireline Secondary	A PSAP which answers wireless 9-1-1 calls directly from the CO but gets wireline 9-1-1 calls transferred in from another PSAP (ex. State Police / Patrols generally operate in this capacity)

From a NG9-1-1 perspective, a PSAP's classification can determine the level of NG9-1-1 services delivered to a specific location or the kind of ESInet connection. For example, in some jurisdictions, Secondary PSAPs are not eligible for direct connection to the ESInet and NG9-1-1 core services unless certain operational requirements are met. The table below identifies the PSAPs of the region.

Primary PSAPs (Answers 9-1-1 calls directly)	Secondary PSAPs (9-1-1 calls are transferred here for further dispatch)
Anoka County Emergency Communications	Allina EMS Communications
Bloomington Police Department	Hennepin EMS
Carver County Sheriff's Office Dispatch	Metro Transit Control Center
Chisago County Sheriff's Office Emergency Communication Center	M Health Fairview EMS
Dakota Communications Center	North Memorial Health Ambulance
Eden Prairie Police	Ridgeview Medical Center
Edina/Richfield Emergency Communications Center	
Hennepin County Sheriff's Office	
Isanti County Sheriff's Office	
Metropolitan Airports Commission Emergency Communications Center	

Primary PSAPs (Answers 9-1-1 calls directly)	Secondary PSAPs (9-1-1 calls are transferred here for further dispatch)
Minneapolis Emergency Communications Center	
Minnesota State Patrol * (*wireless primary, landline secondary)	
Ramsey County Emergency Communications Center	
Scott County Sheriff's Office	
Sherburne County 911 Communications Center	
St. Louis Park Police Department	
University of Minnesota	
Washington County Emergency Communications	
Fort Snelling (DOD PSAP) * (*landline primary, wireless secondary)	

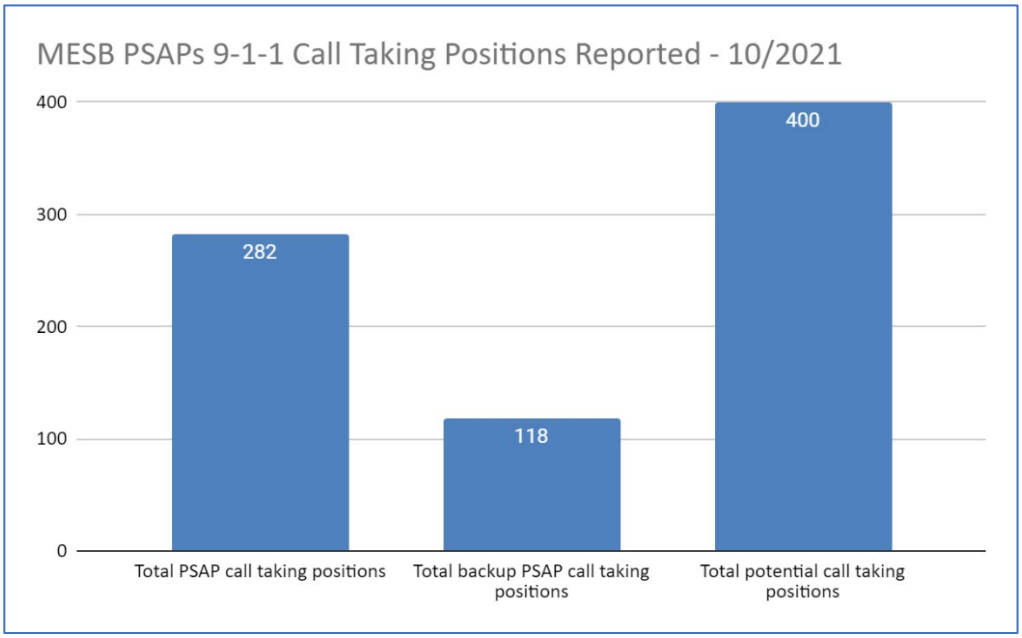
The identified Secondary PSAPs highlight the regional coordination for EMS services across the MESB. It also underscores the operational importance of taking these MESB Secondary PSAPs into consideration when planning for the transition to NG9-1-1, network endpoints and additional cost elements necessary to respond to certain 9-1-1 call types.

2.1.2 Number of 9-1-1 Call Answering Positions

The PSAPs answer 9-1-1 calls using call answering systems commonly referred to as call handling equipment (CHE) or customer premise equipment (CPE). Generally speaking, all PSAPs in the MESB region have the authority and autonomy to purchase and use any CHE system to answer and process 9-1-1 calls from the public to fulfill their statutory obligations related to 9-1-1.

The PSAP survey also sought to identify how many 9-1-1 call answering positions the PSAPs have in their 9-1-1 centers.

-The remainder of this page is intentionally left blank -



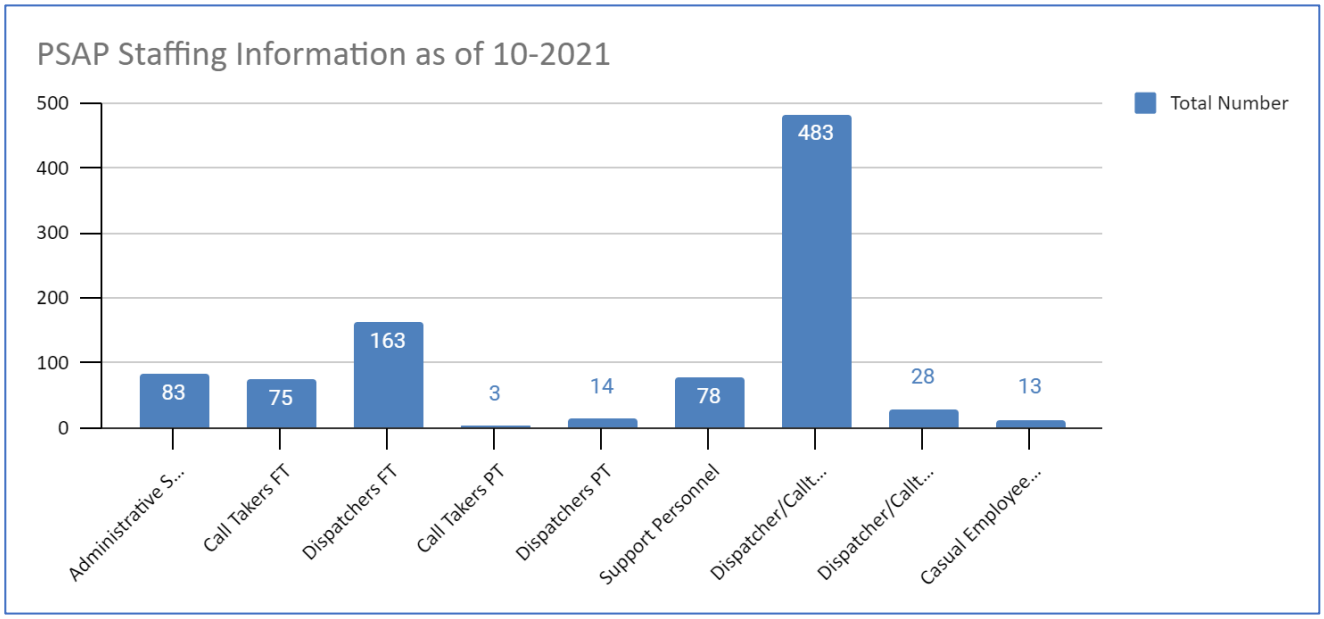
How many 9-1-1 answering positions does your PSAP have?

Location/Type	Total # Positions	Average # of Positions
Active / Primary	**282**	**12**
Backup	**118**	**5**
Total	**400**	

The distribution of 9-1-1 call answering positions across the region is consistent with other 9-1-1 environments across the country in that the number of positions at a PSAP is generally related to the population served by that PSAP. For example, a rural county with a population under 10,000 is likely to have a two position PSAP and lower 9-1-1 call volumes. Resulting in having one telecommunicator answering 9-1-1 calls at any given time. The larger PSAPs of the MESB region all handle larger call volumes and generally require higher levels of investment in 9-1-1 systems, training, staff and support required to handle the higher 9-1-1 call volumes.

2.1.3 Number of Staff Supporting 9-1-1

The PSAPs were asked to provide PSAP staffing information related to 9-1-1 operations as part of their submission. PSAP staffing is another area that can drive 9-1-1 costs, can be tied to system capacities, and corroborates other aspects of the data collected by the PSAP survey. The table below provides a breakdown of the information provided:

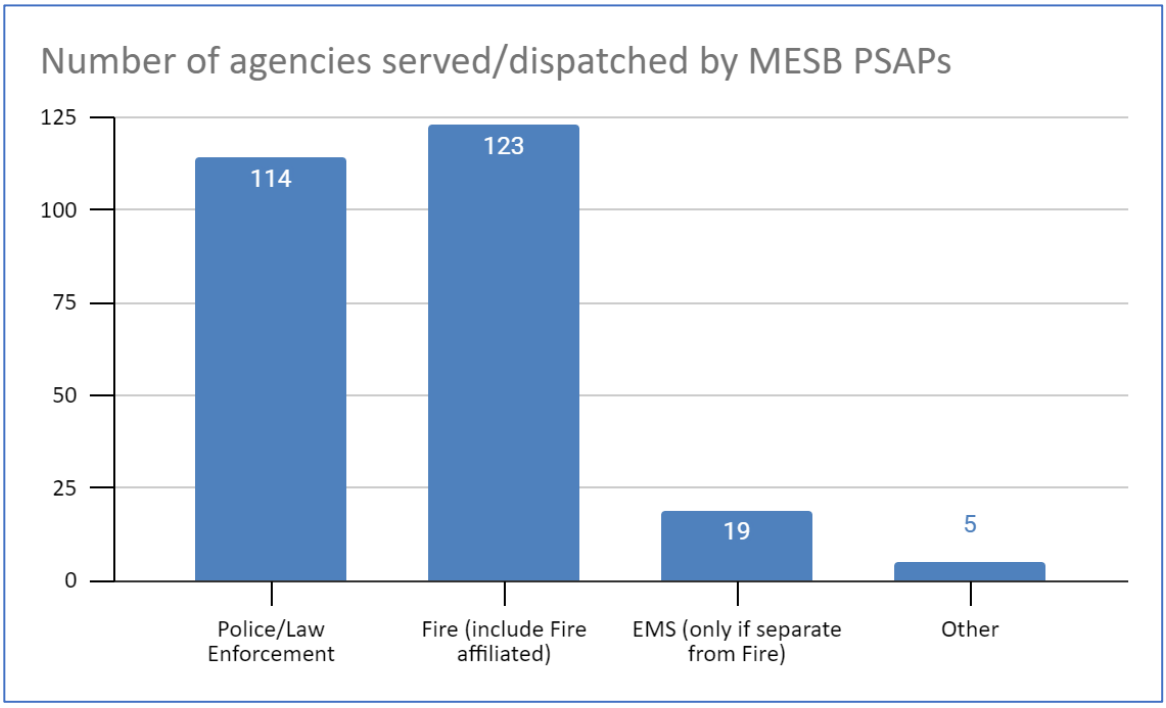


PSAP Staffing Information	Total Number
Administrative Staff	83
Call Taker Full Time	75
Telecommunicator Full Time	163
Call Taker Part Time	3
Telecommunicator Part Time	14
Support Personnel	78
Telecommunicator/Call Taker FT	483
Telecommunicator/Call Taker PT	28
Casual Employees (i.e. Civilian Clerks)	13
Total PSAP Staffing 10-2021	**940**

Staffing in a NG9-1-1 environment will require some different skill sets like cybersecurity and networking or social media and texting. Personnel costs could be impacted by specialized skill sets or from the increased reliance on accurate data like GIS which will require an increase in maintenance activities.

2.1.4 First Responder Agencies Served by MESB PSAPs

The chart and table below summarize the number and types of first responder agencies served by the MESB PSAPs. According to the PSAPs that responded to this question, agencies are dispatched in the MESB region.



Number of agencies served/dispatched by your PSAP

	Total Number
Police/Law Enforcement	114
Fire (include Fire affiliated)	123
EMS (only if separate from Fire)	19
Other	5
Total First Responder Agencies Served	**261**

It is important to note that operationally, it is common for some first responder agencies (typically Fire and EMS agencies) to be dispatched by more than one PSAP. This means there is likely some duplication and overlap between the numbers represented by the survey data above.

2.1.5 Annual 9-1-1 Call Information

Current PSAP call volumes are very valuable information to have and helps corelate many of the other data points collected for this report. The PSAP survey asked the PSAPs about their annual 9-1-1 call volumes.

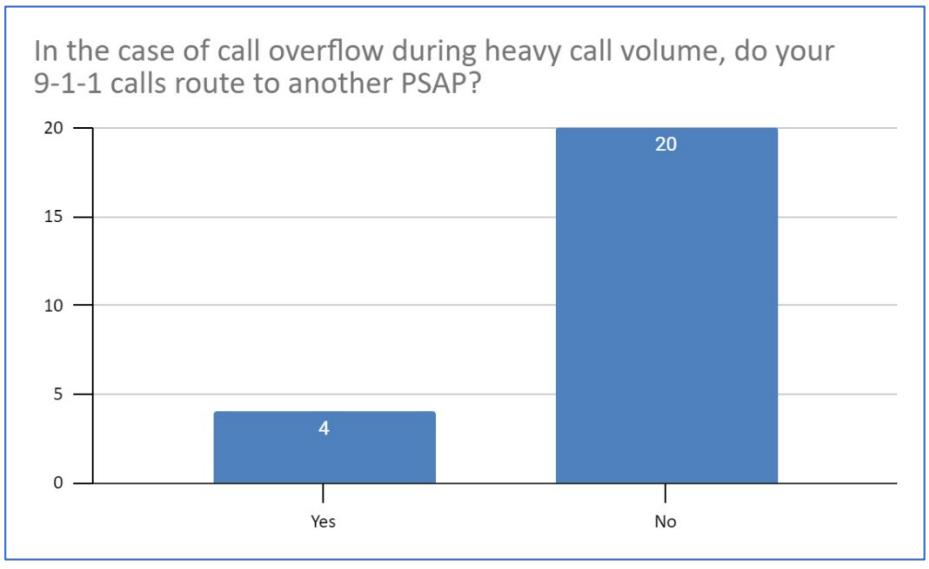
Annual Number of 9-1-1 Calls by Call Type

	Total	Average/PSAP
Wireline/landline 9-1-1 Calls	**419,227**	**17,468**
Wireless 9-1-1 Calls *(including non-service initialized phones)*	**1,831,527**	**76,314**
VoIP 9-1-1 Calls	**115,496**	**4,812**
9-1-1 call transfers to other agencies	**257,433**	**10,726**
Total 9-1-1 Calls	**2,623,683**	**109,320**
Administrative (non-emergency) Calls	**2,806,427**	**116,934**
Total Calls Processed	**5,430,110**	**226,255**

The call volumes reported by the PSAPs reflect a level of activity across the region that is consistent with the population of the region and will inform future NG9-1-1 planning, procurement, and implementations. This information will be vital to sizing the NG9-1-1 system as it relates to expected call volumes any NG9-1-1 system will be required to accommodate.

2.1.6 Legacy 9-1-1 Call Flow Challenges

The PSAP survey asked PSAPs to identify what happens to their 9-1-1 calls when they are busy and cannot answer a 9-1-1 call because they are already working on other 9-1-1 calls, known as an overflow scenario. In a legacy 9-1-1 call flow environment and as seen in the MESB region, what happens to overflow 9-1-1 calls depends on what capabilities a PSAP has to answer 9-1-1 calls presented on other systems, like the admin phone or 10-digit non-emergency number. Here is what the PSAPs reported regarding 9-1-1 call overflows in the MESB region:



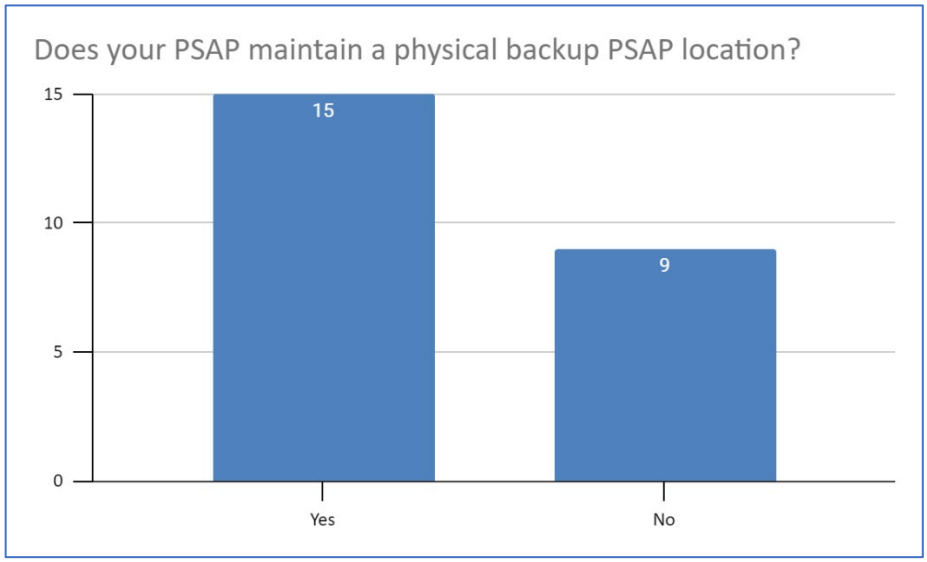
Here are a sample of the responses from the survey for what happens today in a 9-1-1 call overflow in the MESB region:

PSAP Responses
Calls roll to Allina EMS
Hennepin EMS. It is handled by our phone system. Not at the phone company level.
Dakota County Communications
Carver County Sheriff's Office
Overflow 9-1-1 calls route to the non-emergency phone lines and the in-house extension lines.
Fast Busy when all lines are in use
overflow 911 when all lines busy roll to admin lines within center

Generally, it is the intent of every PSAP to answer each and every call. The ability to do so can be limited by many things beyond the control of any one PSAP. What happens to an overflow 9-1-1 call may or may not be within the control of the PSAP.

In NG9-1-1, the ability for a call to go from one PSAP to another based on current network or operating conditions is part of the design and operational capabilities of NG9-1-1. In a NG9-1-1 environment 9-1-1 callers will no longer receive a fast busy, they will be rerouted to another PSAP.
Another similar and related PSAP issue created by legacy 9-1-1 call flow is the fact that some PSAPs have a physical backup facility that typically houses a backup CHE/CPE system and duplicate 9-1-1 connections to the 9-1-1 network for the purposes of remaining operational during times of trouble or outage.

The PSAP survey asked the PSAPs if they have a physical backup location for answering 9-1-1 calls. Here is what the PSAPs reported:

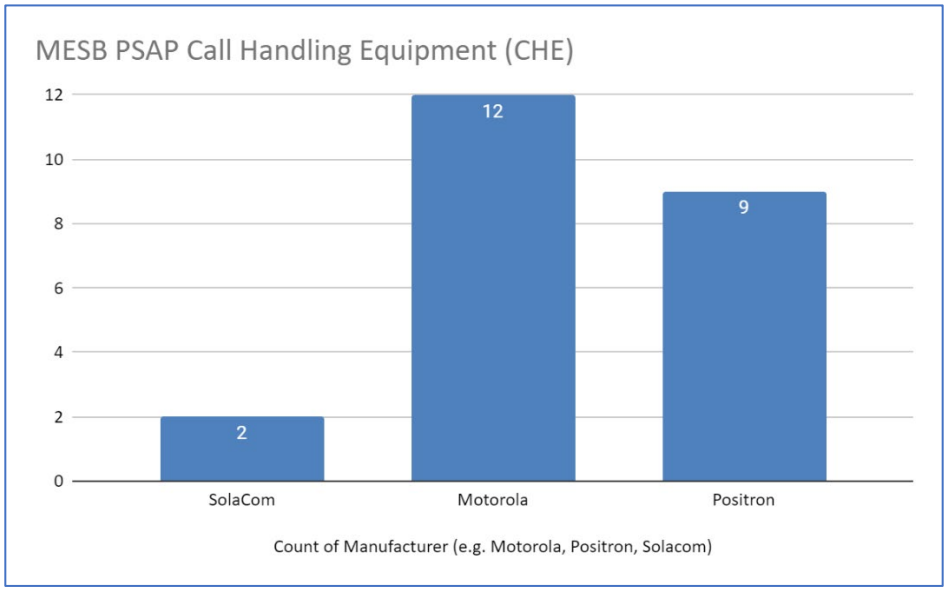


In NG9-1-1, physical backups are not required for most PSAPs to remain operational. With NG9-1-1 dynamic call routing, 9-1-1 calls destined for a particular PSAP can automatically be sent to a predetermined location if the intended PSAP is unavailable for any reason. Larger PSAPs will often maintain a physical backup even when they are part of a NG9-1-1 system given that few other PSAPs can successfully process a large PSAPs' 9-1-1 call volumes. Load balancing at the NGCS can be a mitigating factor in this potential overload the neighboring PSAP scenario.

2.2 Current 9-1-1 Call Handling Equipment (CHE)

An area of focus for this report is to understand the current CHE systems operating in the MESB region. The PSAP survey asked several questions related to a PSAPs CHE, with the intent of gathering enough information to make a determination of NG9-1-1 readiness of any particular PSAP in the region. While the information provided is extremely valuable and informative, some errors or mislabeling of information from the PSAPs exists and it is possible that a PSAP could be identified as not ready when in fact they are and vice-versa.

The list of manufacturers reported by the PSAPs includes:



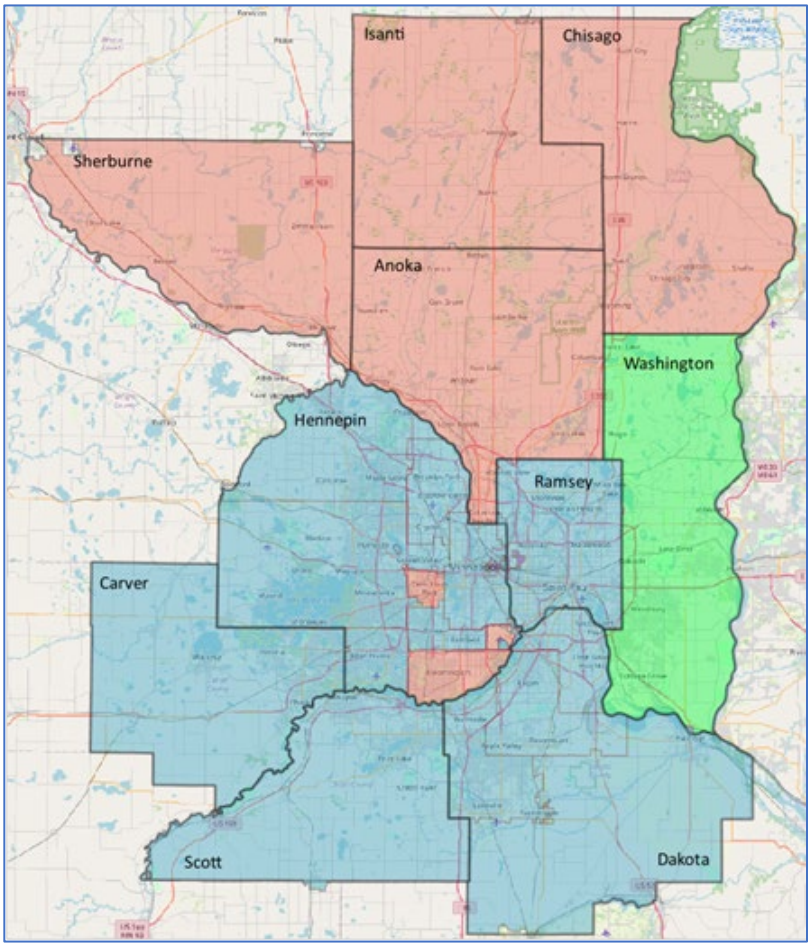
Each of these identified system vendors provide CHE systems that are NG9-1-1 capable to PSAPs across the country. Each of these vendors currently integrates to and operates with numerous NG9-1-1 system providers in other NG9-1-1 systems in other states and jurisdictions. Specific operational capabilities are often dependent on specific PSAP operational requirements and further information is required in order to determine if a specific installation of CHE is NG9-1-1 capable. For our analysis we focused on version numbers.

Where possible, the MESB PSAPs provided version or revision numbers associated with the CHE platforms. Examples include:

Sample Reported CHE Manufacturer and Versions

Motorola	VESTA 911 R7.2.737.673
Motorola	VESTA 911 R7.1.621.568
Motorola	Vesta 6.1.0
Positron	Viper Power911 v 6.4
Positron	VIPER Power 911, 5.1
Solacom	Guardian V 21.3

By examining the version information in more detail, the differences in MESB PSAP CHE installations becomes more evident. Below is the distribution of CHE by manufacturer across the region based on responses to the PSAP survey.



CHE by County (Vesta, Viper, Solacom)

Are the PSAPs of the MESB region ready for NG9-1-1?

> ***It must be pointed out that all MESB regional PSAPs are currently configured to operate with the network provided under contract with Lumen and the Intrado A911 system. As currently configured and connected, all MESB PSAPs would require configuration changes to their CHE platforms if/when the NG9-1-1 service provider changes as a result of the next NG9-1-1 contract signed by ECN, anticipated in 2022.***

Notwithstanding the note above, when analyzing the PSAP responses to the CHE system survey questions, attention was paid to the provided make, model, and version of the CHE system. Having all or some of this information is useful in deciding a PSAPs NG9-1-1 CHE readiness. The primary data used for CHE NG9-1-1 readiness determination is the CHE application's software version number. Based upon our response analysis, the following information pertains to the CHE readiness of PSAPs in the MESB region:

PSAP CHE NG9-1-1 Readiness Assessment

PSAPs Reporting NG9-1-1 Capable CHE *(18 Primary and 2 Secondary PSAPs)*	23
PSAPs Reporting Non-NG Ready CHE or Unknown	2
Totals	25

Based on the information provided from the PSAPs, 18 Primary and five Secondary PSAPs in the MESB region operate a CHE system that should require little modification when transitioned away from receiving 9-1-1 calls from the current 9-1-1 system to receiving calls from a NG9-1-1 system. That is not to say there will be no costs involved in the transition, it means that the CHE system itself will not require complete replacement when the PSAP is transitioned over to the new NG9-1-1 system. If the transition to a new NG9-1-1 system occurs in the next 12 – 24 months (by 2024) as anticipated, then a software upgrade to a newer revision is all that should be required at the majority of MESB PSAPs. The remaining CHE systems in question are operated at Secondary PSAPs and may require replacement if full capabilities are expected to be shared between Primary PSAPs and Secondary PSAPs across the region.

2.3 Findings and Conclusions

- The data collected for this report establishes an excellent foundation for the analysis presented in this report. While the data represent a snapshot in time and the accuracy of specific information will decline over time, the level of information is appropriate, valid, and necessary to inform an orderly transition to NG9-1-1 in the MESB region
- The anticipated level of upgrades to systems and equipment necessary for MESB PSAPs to transition to full NG9-1-1, i3 operating capability is low to moderate from a PSAP cost, training and major equipment change out perspective. Assuming a transition to full NG9-1-1 capability occurs within the next 12 to 24 months
- All MESB PSAPs will require some level of upgrade to transition away from the current 9-1-1 system provided under contract with Lumen to a system that fully supports the NENA NG9-1-1 i3 specification
- Staffing in a NG9-1-1 environment will require different skill sets like cybersecurity and networking or social media and texting. Personnel costs could be impacted by specialized skill sets or from the increased reliance on accurate data like GIS which will require an increase in maintenance activities.

3. NG9-1-1 Assessment

This section of the report will focus on the following areas relevant to NG9-1-1 in the MESB region and how these areas will change in this new 9-1-1 environment:

- NG9-1-1 and PSAP Operations
- GIS in NG9-1-1

3.1 NG9-1-1 and PSAP Operations

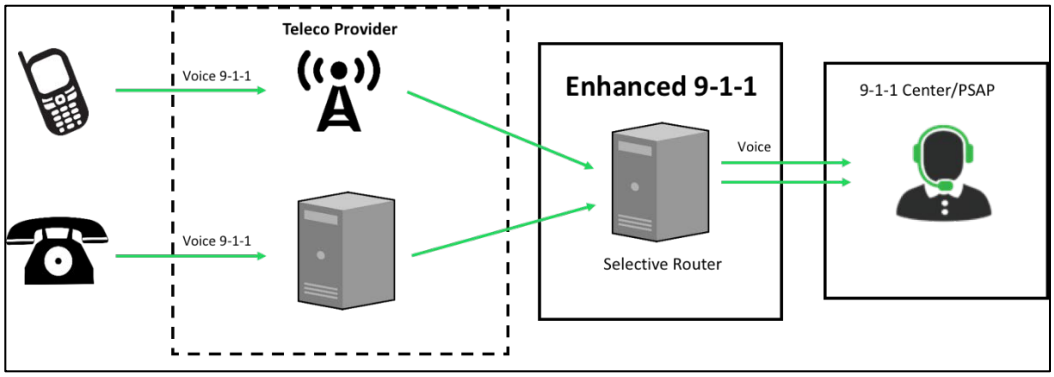
This section of the report will explore the various ways operating on a NG9-1-1 system will be different than the legacy 9-1-1 system and how those differences can affect PSAP operations in the MESB region, which includes the following areas:

- NG9-1-1 Call Flow
- Physical Backups and 9-1-1 Call Overflow
- 9-1-1 Call Transfers
- Training and Protocols

3.1.1 NG9-1-1 Call Flow

9-1-1 call flow in NG9-1-1 is different than the legacy 9-1-1 system. Understanding the differences is important to understanding how NG9-1-1 can address the challenges legacy 9-1-1 call flow creates in MESB.

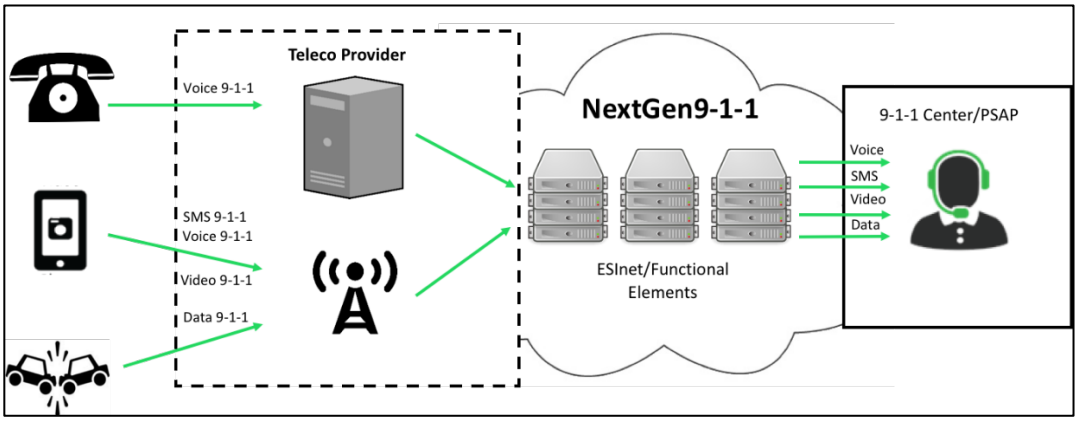
The diagram below shows a simplified legacy 9-1-1 system. 9-1-1 calls enter the system on the left of the diagram and progress through a series of analog connections and the legacy Selective Router (SR) to one of the PSAPs connected to that SR.



The diagram shows dedicated, point to point connections between legacy elements that are used to selectively route a 9-1-1 call to a PSAP. All 9-1-1 calls in the MESB region rely upon these kinds of dedicated connections built to specific PSAPs in order to process 9-1-1 calls. What SR a PSAP connects to is based largely on where the

PSAP is physically located and the evolution of the telephone networks over the 19th and 20th centuries.

The following diagram represents a simplified NG9-1-1 system. Here too, calls enter the diagram on the left and progress through a core routing function which then sends the 9-1-1 calls on to the PSAPs that are connected to the ESInet.



The NG9-1-1 diagram shows many more connections and functions involved in processing a 9-1-1 call. This visually demonstrates a major difference between how a 9-1-1 call gets received, processed, routed, and delivered in the legacy and NG9-1-1 environments.

In legacy 9-1-1, the 9-1-1 call relies on dedicated trunks connecting a SR to a PSAP. In NG9-1-1, the 9-1-1 call relies on a session being established between the 9-1-1 caller and the PSAP via SIP. The NG9-1-1 call session relies upon the ESInet, which relies on multiple paths and connections to connect to all PSAPs. This allows for the NG9-1-1 system to send 9-1-1 calls to any PSAP that is connected to the ESInet, regardless of where the 9-1-1 call came from or how it came into the system.

This basic difference, multiple paths and connections versus limited dedicated trunks delivering 9-1-1 calls to the PSAPs, begins to address the challenges identified and allows for planned operational change to occur in the MESB region.

3.1.2 Physical Backups and 9-1-1 Call Overflow

As noted previously, there are PSAPs in the MESB region that maintain physical backups as well as PSAPs whose 9-1-1 calls will ring to a “fast busy” if the PSAP is overloaded. These situations exist primarily as a result of the limitations inherent in the design of the legacy 9-1-1 system. Specifically, the challenges addressed by NG9-1-1 include:

- Physical PSAP Backups

- 9-1-1 Call Overflow

Physical PSAP backups

Based on the survey results, at least 15 PSAPs in the MESB region maintain a physical backup for their PSAP. This typically means there are duplicate 9-1-1 connections, systems, and costs associated with maintaining a physical PSAP backup. There are operational reasons for PSAPs to maintain physical backups, but NG9-1-1 makes every other PSAP in the region a virtual backup PSAP.

NG9-1-1 will make it possible for some PSAPs to decommission their backup PSAPs, eliminating the duplicate costs and systems, which could result in significant savings over the long term at the local level. The ability for a PSAP to back up another PSAP in NG9-1-1 will require an increase in cooperation, communication, and data sharing between agencies.

It may be necessary, from an operational standpoint, for larger PSAPs to maintain a physical backup when diverting their 9-1-1 call traffic would result in cascading overloads of smaller PSAPs across a region or the state. The inherently flexible location-based routing capabilities of a NG9-1-1 system will provide many alternative backup arrangements for PSAPs to consider as the transition to NG9-1-1 takes place.

9-1-1 Call Overflow

Another challenge identified in the survey data is what was referred to as 9-1-1 call overflow. According to the survey results, 20 PSAPs do not overflow their 9-1-1 calls to another PSAP if they are busy and cannot answer the call. These 9-1-1 calls could go unanswered or result in the caller hanging up and sending another 9-1-1 call into the system.

NG9-1-1 will make it possible for all 9-1-1 calls to be answered regardless of what is happening at any given PSAP in the region. The dynamic call routing design of the NG9-1-1 system will automatically overflow a 9-1-1 call to another, pre-designated PSAP or series of PSAPs until the call is answered. This is accomplished via a NG9-1-1 system function known as a Policy Routing Function (PRF).

Operationally, PSAPs will need to participate in the planning and configuration of the PRF in a NG9-1-1 system. Sending a 9-1-1 call to a PSAP is easy to do from a technical standpoint in NG9-1-1, but dispatching, paging first responders, activating warning sirens, and LMR communications for another PSAP is a different operational challenge not directly addressed by the NG9-1-1 system.

3.1.3 9-1-1 Call Transfers

Transferring a 9-1-1 caller is an operational reality for a PSAP, especially for certain types of 9-1-1 calls like wireless/cellular 9-1-1 calls. If a PSAP is a Secondary PSAP, one that does not directly get 9-1-1 calls. This often requires additional interrogation of the caller and a delayed dispatched response.

NG9-1-1 mitigates the challenges with 9-1-1 call transfers with the ability of the NG9-1-1 system to dynamically route and ultimately geo-route 9-1-1 calls based on location data. For the 25 PSAPs in the MESB region, the NG9-1-1 system will automatically route all calls, including wireless 9-1-1 calls, to that PSAP based on the location of the call and the caller will not be transferred between PSAPs as much as they are today.

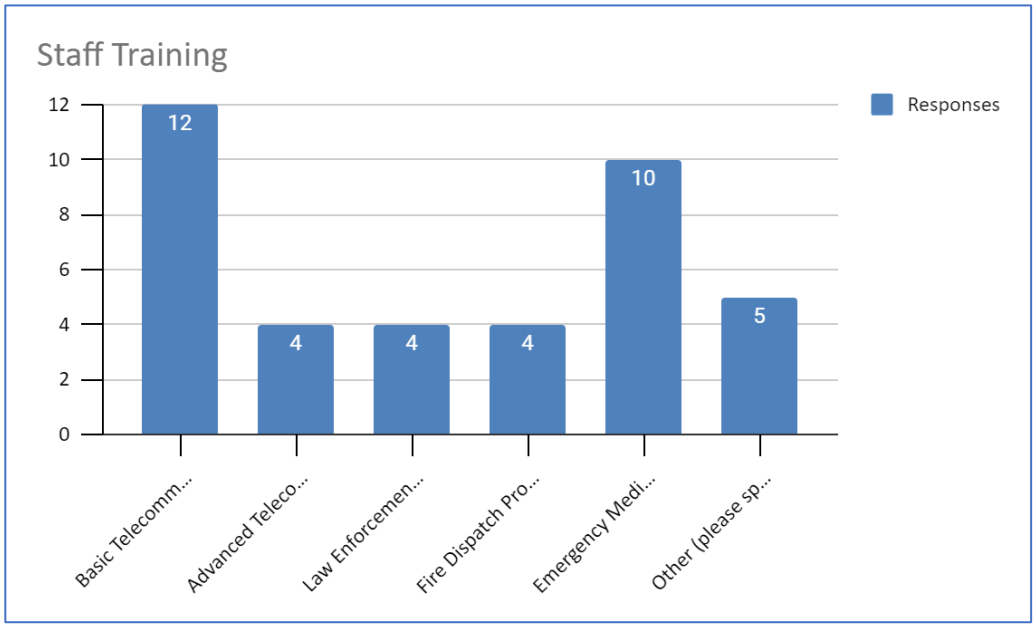
An operational efficiency the region enjoys comes from the fact that all MESB PSAPs is that all PSAPs are served by and connected to the same routing cores and if a call is transferred from any PSAP to any other PSAP across the region or across the state, the location data is available for that call and will be provided to the transferred agency.

3.1.4 Training and Protocols

The transition to NG9-1-1 brings with it more than just changes in equipment at the PSAP. New systems, new tools, new processes all add to the demands placed upon telecommunicators when processing 9-1-1 calls. Given that NG9-1-1 primarily moves away from a system designed to handle landline 9-1-1 calls to a system that can process multiple types of calls, it is likely that lack of training could become an obstacle to the deployment of NG9-1-1 at the PSAP. Training will be necessary to operationalize many of the capabilities promised by NG9-1-1 service.

The PSAP survey asked PSAPs about training and protocols currently in place. The chart below provides the breakdown on PSAPs that require some type of formal 9-1-1 training for telecommunicators. Another question on the survey asked the PSAPs to report on any 9-1-1 protocols used in the PSAP for call interrogation. The chart below provides the results from the PSAPs.

-The remainder of this page is intentionally left blank -



Training Types	Required
Basic Telecommunicator	12
Advanced Telecommunicator	4
Law Enforcement Protocols	4
Fire Dispatch Protocols	4
Emergency Medical Dispatch	10
Other (please specify)	5

Other training/protocols identified include:

- Telephony CPR
- Inhouse training specific to disciplines supported by the PSAP

The State of Minnesota has statewide minimal training protocols in place for telephone CPR. The Statewide Emergency Communications Board has established a minimum training standard, Standard 911-3 Telephone CPR Statewide Operational Standard, that establishes every PSAP must maintain a telephone cardiopulmonary resuscitation program in one of two ways. The first option is to provide each 9-1-1 telecommunicator with training in cardiopulmonary resuscitation. The second option is for the PSAP to have the ability to transfer callers to another PSAP in which the telecommunicators have been trained.

The MESB provides a minimum training requirement for telecommunicators in the region. The training contains specific topics which provide the basic foundational knowledge and skills necessary to fulfill the role of a telecommunicator. These topics include Roles and Responsibilities, Legal Concepts, Interpersonal

Communication, Emergency Communications Technology and Information Systems, Call Processing, Emergency Management, Radio Communications, Stress Management, and Quality Performance Standards Management.

The ease with which a NG9-1-1 system can dynamically route calls between PSAPs will quickly highlight differences in training and protocols across the region. Other jurisdictions, while implementing NG9-1-1 systems, have also encouraged and supported consistent service with programs like minimum training standards or the adoption of protocols like emergency medical dispatch (EMD). Given the existing level of support from the PSAPs for both basic telecommunicator and protocol specific training as reported on the survey, it could serve as a foundation for further standardizing PSAP training across the MESB region.

3.2 GIS in NG9-1-1

Historically, all 9-1-1 calls are delivered to a PSAP by a telecommunication OSP. The OSP is responsible for carriage and delivery of a call to the correct PSAP using a database that has been largely defined by the physical location of a device or agent capable of dialing 9-1-1.

This database (referred to as the Selective Router Database or SRDB) is a collection of data records that link a telephone number to a physical address. In 9-1-1 systems, this framework minimizes the variability of locations by defining exactly where a call goes based upon a fixed attribute in the database.

The SRDB functionality has worked well; however, new technology, user mobility and applications available to consumers are not as fixed as they were when the system was originally implemented.

Today, the devices and systems that can trigger an emergency call have caused the existing 9-1-1 systems to pursue several augmentations, patches, and significant system upgrades to meet the demand in attempts to increase the ability of the fixed location-based system to handle mobile (non-fixed location) devices.

The preferred method of routing calls in NG9-1-1 and in the future is geospatially. Using the spatial ability of Geographic Information Systems (GIS) that utilize attributes specifically structured for call routing offers a significant enhancement to 9-1-1. This configuration allows for call information systems to query the maps derived databases to identify the caller location and route a call to the correct PSAP.

PSAPs across the MESB region utilize GIS as a tool in many ways. Most utilize GIS to support the PSAP's CAD/mapping system and as a tool to manage the Master Street Address Guide (MSAG) which is developed by a PSAP to validate the records contained in the current ALI and SRDB. GIS developed geospatial datasets exist for all MESB counties and PSAPs. These authoritative GIS databases are locally developed and maintained, as well as aggregated into datasets that provide coverage for the 10-county MESB region.

Geolocating calls is a significant change to how 9-1-1 calls route. In E9-1-1 and legacy systems OSPs control the information and routing of a call. This can occasionally lead to incorrectly routing calls to the wrong PSAP. In addition, if a call must be transferred outside of an OSP service area a loss of data including the location may occur. This can result in PSAPs losing critical information about the caller as they are transferred from PSAP to PSAP.

The significance of routing based upon location cannot be overstated. The benefits of location-based routing in NG9-1-1 allows for 9-1-1 to operate as a seamless system rather than a series of siloes and individual platforms designed to support a single OSP or PSAP.

3.2.1 Address Databases

One of the primary components of a 9-1-1 call is the determination and conveyance of caller location. Within a legacy 9-1-1 call flow this is often done through using databases that contain a fixed address. Databases built from customer records of addresses are used during the Service Order Input (SOI) process to document the fixed location of the service address (sometimes billing address) of the OSP customer. The SOI process results in a database of customer locations based on their address at the time they connect the service from the OSP.

Legacy 9-1-1 databases (e.g. ALI) are often developed from OSP SOI records. The SOI record is a database record that contains a service order subscriber name and address where the telephone number is installed or assigned. Over time additional supplemental databases built with GIS have been created to enhance the baseline SOI data. The MSAG is used to define the address ranges and is often exported from a GIS tool to validate the SOI and establish an Emergency Service Number (ESN). The ESN is appended to the SOI information, and the result is the SRDB. The SRDB is the primary method for routing calls in E9-1-1 and legacy 9-1-1. If attributes are not present in the databases or is inconsistent, the call will still route to the PSAP because it uses the ESN contained in the SRDB that was defined through the SOI process. The SRDB has essentially reached obsolescence due to the increase of mobile communications.

The MSAG is developed and maintained by the local 9-1-1 authority and contains the address ranges and street names within a PSAP's serving area. The MSAG is used as a validation tool in legacy 9-1-1 systems to ensure that each ALI database record has a corresponding MSAG street and address range. This process ensures that a PSAP will receive validated ALI on the screen at the telecommunicator position for each call. In addition, the process also assigns each ALI telephone number record, based on its corresponding MSAG entry, an ESN that is used in the SRDB for PSAP routing, as well as with identification of emergency response agencies in the ALI display.

In NG9-1-1, emergency call routing and location validation occurs through the geolocation database system that utilizes aggregated and normalized geospatial data. These functions are defined in NENA i3 Standards as Emergency Call Routing Function (ECRF) and Location Validation Function (LVF). The ECRF and LVF transactions

utilize the spatial information provisioned by GIS to determine location of the caller and identify a route through the NG9-1-1 system to a PSAP.

3.2.2 GIS Normalization and GIS Synchronization

During transition to NG9-1-1 call routing, databases used in the legacy 9-1-1 system will serve as a baseline to ensure that migration operates in a consistent manner as the current 9-1-1 routing system. Over time, the manner which the 9-1-1 routing data is managed and maintained will change. Instead of the MSAG process, the data will be managed through GIS which will allow for a more effective and efficient update and correction method.

As transition occurs, there will be areas that may require attention including:

1) Disparate GIS management agencies and systems
2) Disparate GIS data layers
3) Sharing of GIS information
4) Inconsistent attribute data
5) Reconciliation of GIS data with MSAG
6) Normalization of GIS data
7) Existing ALI management tools and services

Through the GIS development process, two additional steps will be undertaken by the MESB region.

First, all GIS data will be "normalized" across the region. This entails:

- **Common regional data schemas**
  - Ensure a common structure and format for each data layer, with normalized attribution, that is compatible with NG9-1-1 data requirements
- **Common submission method**
  - For data sourced through MESB-member county GIS partners to be federated
- **Common process for regional data aggregation and publication**
  - Data merged and available on a greater coverage area than ever before
- **Edgematching of data between counties:**
  - All polygon boundary edges between county, PSAP, and response agencies are seamless, i.e. "matched"
  - Centerline segments that cross county boundaries align
  - Verified through Quality Assurance/Quality Control (QA/QC) steps
  - All gaps and overlaps have been corrected

The second step is GIS Synchronization. This step audits the NG9-1-1 geospatial data with the legacy ALI and

MSAG information to synchronize the data in support of the migration to NG9-1-1 call routing and location validation. Data synchronization helps to ensure the GIS data has reached a level of accuracy and completeness sufficient for NG9-1-1 use. This entails:

- GIS synchronization of attribute data may include many validation audits, such as:
  - ALI to Centerline audit
  - MSAG to Centerline audit
  - Address points to ALI audit
  - Boundary audit
  - Routing audit
  - NENA NG9-1-1 data model audit
- Alignment of MSAG validation with GIS validation during the transitionary period (e.g. GIS-derived MSAG)

Along with these two key steps for GIS development, data processes and workflows to support ongoing maintenance of the regional NG9-1-1 geospatial datasets, as well as integrating them into a statewide NG9-1-1 system deployment will be needed to support the metro area's NG9-1-1 transition.

3.2.3 Legacy 9-1-1 Call Routing

Existing legacy 9-1-1 systems utilize data that assists in determining the location of a call based on the service address. 9-1-1 calls are routed to a PSAP based upon the key database fields contained in the SRDB. This data has historically been tied directly to telephone company billing/service records that link a telephone number to the fixed address at which the service is installed. Based on legacy validation processes, each ALI telephone number record, based on its corresponding MSAG entry, is assigned an ESN that is used in the SRDB for PSAP routing. It is simply a tabular lookup in the database to find the ESN, which in turn identifies the PSAP, associated with a telephone number. Once that information is collected, the Selective Router sends the call on to the PSAP without any other location information; only the ANI is delivered at this stage in the call flow. Once a call is received at the PSAP the CHE will query the SRDB to gather the ALI and present it to the call taker. This means that the call is delivered to a PSAP before location. Another way to think of Legacy 9-1-1 call routing is the "PSAP finds the callers location. After the call is answered by the telecommunicator, a separate data query obtains the ALI location information to display on the CHE screen. The information displayed is the presumed location of the caller. The legacy 9-1-1 call routing method has worked very well for calls from "fixed" locations (e.g. wireline) and continues to be an efficient way of routing wireline traffic.

This method of call routing and location identification, however, has become obsolete with the introduction and proliferation of wireless and VoIP callers. Caller location is no longer directly tied to a physical location as it was when the legacy 9-1-1 selective routing platform was deployed.

3.2.4 NG9-1-1 Call Routing

NG9-1-1 call routing is designed to deliver location along with the call. This means the CHE operates slightly different since it does not rely on the ANI to ALI query the same as it has in Legacy 9-1-1. A simpler way to understand the difference between legacy 9-1-1 call routing and NG9-1-1 call routing is:

E9-1-1 (Legacy)	PSAP "finds" the caller by asking for location
NG9-1-1	Caller "finds" the PSAP by looking for the PSAP location

In NG9-1-1, civic addresses will utilize frameworks known as Civic Location Data Exchange Format (CLDXF) and the Presence Information Data Format Location Object (PIDF-LO) to replace ALI with location information that must match the data contained in a GIS layer. CLDXF and PIDF-LO usage is known in NG9-1-1 as "location-by-value" and offers the potential for more detailed location information than traditional ALI. In a transitional model, all ALI records must be modified to meet the CLDXF framework. GIS is the best option for a tool to do that.

NG9-1-1 can also route based upon geodetic coordinates, which typically are referred to as X,Y coordinates. Latitude and Longitude coordinates are known in NG9-1-1 as "location-by-reference". While the legacy 9-1-1 call routing platform is obsolete, a lot of the database information that is used currently is relevant for building the NG9-1-1 database used for NG9-1-1 call routing. Typically, this data is reflected as attribute information in a GIS to spatially link a GIS feature with the attribute data that can be used by the NG9-1-1 routing platform. The result is a fully capable and functional location-based system that can link a caller location to the attribute information in the GIS to determine a route.

Examples of the data that can be used to develop a GIS data management structure that are used in legacy 9-1-1 include but are not limited to:

1) Valid MSAG per PSAP
2) Selective Routing database information
3) County based Geo-files
4) Emergency Service Zones (ESZ) and Emergency Service Numbers (ESN)
5) Street Centerlines and Address ranges
6) Additional county and regional GIS layers

3.2.5 NG9-1-1 and GIS Strategy

One of the first steps in the development of an NG9-1-1 system is the process of getting the GIS information in order. The NENA NG Data Model has identified the primary (required) layers that are needed to route 9-1-1

calls. The remaining layers are useful primarily at a PSAP or jurisdiction to refine the knowledge about a call or situation. Therefore, from a strategic perspective, the layers are often defined in terms of Call Routing or Call Dispatch. This is an important designation to consider since many of the Call Dispatch layers may require additional effort to review, modify, and agree upon.

For the MESB region, a strategy to build the Call Routing GIS database with the minimal information to route traffic to a PSAP can allow rapid deployment of NG9-1-1.

3.2.5.1 Call Routing

Call Routing does not technically require all the information that a Call Dispatch platform does. However, if the information is available and can be used, it is valuable to support and enhance the effectiveness of NG9-1-1.

In almost all cases, Call Routing via GIS can be introduced sooner in NG9-1-1 implementation and be functioning in a rapid manner. This is due to the Call Routing function only needing an X/Y derived location and a boundary to select where to route a call. The additional layers and information contained in the NENA Data Model are very important, but if they are not available initially, it does not need to hinder the advancement to NG9-1-1 GIS routing of 9-1-1 traffic.

It is also likely that the Call Routing GIS data required will require less initial effort than Call Dispatch to become deployable with NG9-1-1. Focusing on the Call Routing data first may accelerate the usage of the ESInet and NG Core Services for routing.

3.2.5.2 Call Dispatch

Call Dispatch happens after the PSAP receives the call and uses the local tools to display and manage the response to the incident. Call Dispatch mapping information is normally used within a local CAD system and contains specific information that may be useful for a single PSAP. In addition, the Call Dispatch information contains additional layers that may be used after a call is answered – but will not be used to route a call to a PSAP.

The GIS data used for Call Dispatch is largely influenced by the PSAP. This can require substantial effort to adjust, modify, and match all of the variable data sets from the local level. Layers such as speed limits, road closures, or other specific files that are important when dispatching a call is not likely to impact routing a call to a PSAP. Feature sets for Call Dispatch can certainly aid the NG9-1-1 Call Routing function, but often require concurrence by all agencies. This factor increases the likelihood of substantial delays with strategically deploying a system that can route calls.

This is an important distinction because there are often Call Dispatch issues (first response boundaries for

instance) that while important – are not crucial to develop and implement a geolocation-based Call Routing platform.

Recommendations

This section has presented many common themes relating to GIS in NG9-1-1. While GIS itself is an integral part of an NG9-1-1 system it is primarily just a tool. The spatial data that is managed and maintained by a GIS tool is critical to geo-location for NG9-1-1. The recommendations that follow are primarily focused on the database and operations of the GIS as a tool to create, manage, and maintain the geo-location system.

- Ensure that the GIS normalization of the spatial data sets and geographic features meets the accuracy requirements of the selected NG9-1-1 vendor. The GIS normalization process will be necessary to identify and correct discrepancies that may cause the NG9-1-1 vendor to delay acceptance of the data

- Complete the GIS synchronization of ALI and MSAG information. The GIS synchronization has largely been completed but may require additional effort once the NG9-1-1 vendor is chosen

- Establish a process for how GIS data is replicated to the NG9-1-1 vendor either through a Spatial Interface (SI) provided by the NG9-1-1 vendor (or partner). The SI process may include new tasks for each PSAP regarding the upload and replication of data to the NG9-1-1 system

- Establish how the NG9-1-1 vendor is using the SI and spatial data as a validation with the telecommunication database records. Discrepancies are going to occur between the OSP records and the spatial data. A new process may be required by the NG9-1-1 vendor to ensure a prompt remediation of errors is completed by all PSAPs

4. Other Considerations

4.1 NG9-1-1 Costs

Costs in a NG9-1-1 operating environment are similar to and, in certain instances may replace the current costs MESB PSAPs pay related to 9-1-1 call delivery and processing. The costs for today's 9-1-1 network is based largely on regulated and tariffed services specific to wireline telephones as defined and provided by the legacy telephone companies. The transition to NG9-1-1 sets the stage to reduce or remove these costs, and the legacy regulated mechanisms in place to pay for them.

There are several strategies for mitigating the occurrence of overlapping PSAP costs while the transition to NG9-1-1 takes place. A successful strategy used in other states is to negotiate terms establishing that payment for any NG9-1-1 related services will only occur upon the successful cutover and testing of NG9-1-1 service to the PSAP. This approach creates a milestone event that can be used to determine when old costs end and new costs begin.

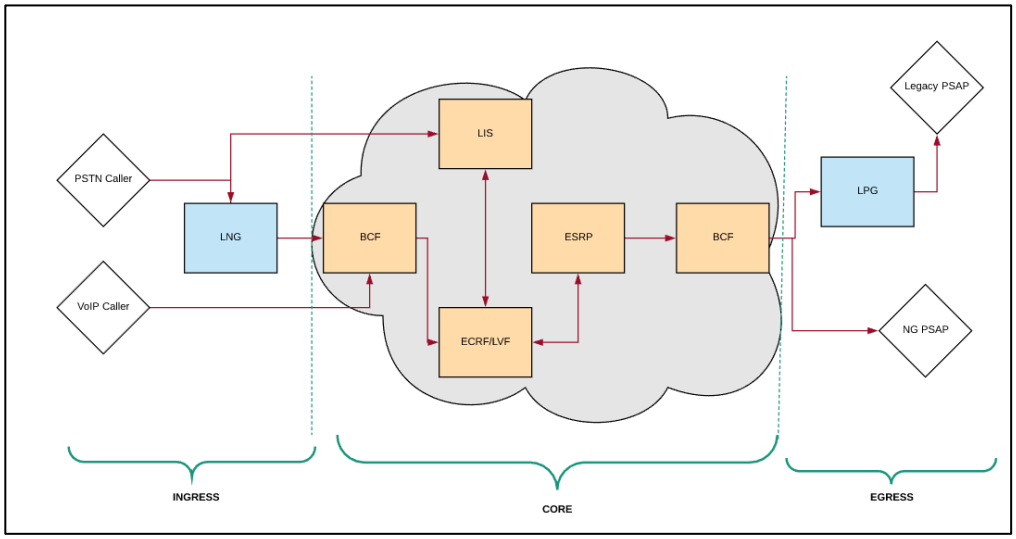
As the transition to NG9-1-1 begins, new and different cost elements will come into play. The factors that will impact, drive and influence costs for NG9-1-1 include:

1. NG9-1-1 ESInet and Network Costs
2. NG9-1-1 Core Services/i3 Standards Costs
3. NG9-1-1 Transition Costs
4. NG9-1-1 GIS Costs
5. NG9-1-1 Training/Support Costs

4.1.1 NG9-1-1 ESInet and Network Costs

The ESInet and network costs fall into three general areas:

1. **Ingress** – the network needed to get 9-1-1 calls from the OSPs to the Next Generation Core Services (NGCS) for processing and routing to a PSAP
2. **Core** – the network needed to process 9-1-1 calls between geo-diverse Next Generation Core Service nodes typical of most NG9-1-1 systems
3. **Egress** – the network needed to deliver 9-1-1 calls from the core to the PSAPs for processing and dispatch



All ESInet and network costs are generally driven by the number of connections and the bandwidth required for those connections. For example, if there are 25 MESB PSAPs and each PSAP requires a 10 mbps connection to the ESInet for 9-1-1 call processing, then a service provider can take that information, design the egress ESInet to the PSAPs and establish a cost for doing so.

Additionally, ESInets require hardware and specialized equipment in order to operate as expected. The type of hardware used, and the level of redundancy needed for 99.999% availability will drive the cost for the ESInet as well. The ESInet hardware components that will be required include:

- **Border control functions and Session Border Controllers** (**SBC**)– used for 9-1-1 call control and security in the ingress and egress sides of the ESInet
- **Core Routers** – to route traffic between the NGCS, typically high capacity and expensive
- **NGCS Application Stack x2** – used to process 9-1-1 calls and route to the PSAPs, typically two or more instances in geo-diverse locations
- **Edge Routers** – to route traffic between the NGCS and the PSAPs, typically a minimum of two per PSAP for proper redundant connectivity to the NGCS

These elements will be new costs and will be incurred in addition to the existing expenses at the state and local level for things like radio, CAD, or CHE.

The ESInet network connectivity components include some elements that require redundancy for network reliability, effectively doubling the costs. For example, each of these bullets represents a duplicated cost:

- Redundant connections OSP to NGCS
- Redundant connections NGCS to NGCS
- Redundant connections NGCS to PSAP

- Redundant connections NGCS to Interstate-NGCS

The ESInet portion will directly affect the costs of network connectivity at the PSAPs. Depending upon the transition and migration strategy employed for the ESInet, these costs may be phased in. In addition, the ESInet costs will offset other charges that are currently being paid like analog 9-1-1 trunks or ALI.

4.1.2 NG9-1-1 Core Services/i3 Standards Costs

The NGCS functional element stacks are implemented to process and route NG9-1-1 calls across the ESInet and the MESB region. These functional elements and service components are necessary for the transition into a fully functional NG9-1-1 network and will bring new service costs as a result.

NG9-1-1 functional elements and services will drive costs in the transition to and operation of the NG9-1-1 systems. The NG9-1-1 functional elements include:

- Emergency Services Routing Proxy (ESRP) – would be replicated across NGCS cores and used by PSAP CHE
- Location Information Server (LIS) / ALI and Database service – would be centralized and aggregated in the core and used by PSAP CHE
- Emergency Call Routing Function/Location Validation Function (ECRF/LVF) – would be replicated across NGCS cores and used by PSAP CHE
- Legacy Selective Router Gateway (LSRG) – needed for transition from legacy to NG9-1-1, cost will decrease over time
- Legacy Network Gateway (LNG) – needed on the ingress side for OSP transition, cost will decrease over time. LNG's will be required until all OSPs have transitioned to IP connectivity to the ESInet
- Legacy PSAP Gateway (LPG) – needed during the transition from legacy 9-1-1 to NG9-1-1, cost will decrease over time. LPG's will be required until all PSAPs have transitioned to "NG9-1-1 capable" CHE

4.1.3 NG9-1-1 Transition Costs

A transition from the legacy 9-1-1 system to a NG9-1-1 system will be necessary for all PSAPs and residents to benefit from the increased capabilities NG9-1-1 will bring to the MESB region. While there are no standardized approaches or methodologies for going through the transition, there are identifiable phases or milestones that are necessary to complete in order to move from one environment to the other.

Each phase of the transition to NG9-1-1 has the potential to impact costs carried by the current system. The NG9-1-1 system deployment in the MESB region and in greater Minnesota will essentially follow this progression and timeline until full NG9-1-1 deployment is established. The common timeline for completing this transition is 18 – 24 months from the time a NG9-1-1 services contract is signed. The figure below displays the typical NG9-1-1 transition milestones over time.

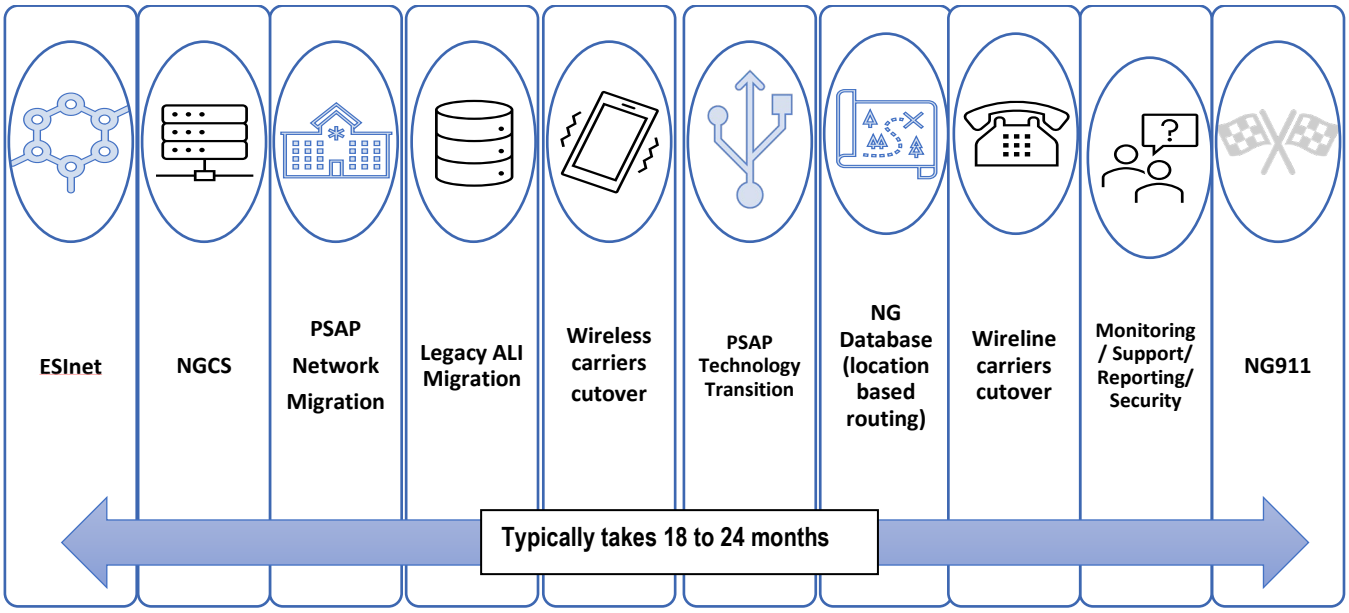


FIGURE 2 - NG9-1-1 TRANSITION MILESTONES

As the NG9-1-1 system deployment progresses through these transition milestones, economies of scale and consolidation of fragmented technical services like ALI should allow for cost savings in subsequent phases. Not all the phases are sequential, and some can begin in parallel.

PSAP costs associated with the transition to NG9-1-1 are controlled by the length of time both the legacy 9-1-1 and NG9-1-1 systems are required to operate together. As long as PSAPs are getting 9-1-1 calls routed to them from the legacy 9-1-1 system, they will be liable for those legacy costs. In other words, until all the PSAPs are cutover to and receiving all 9-1-1 calls from the NG9-1-1 system/ESInet, the legacy 9-1-1 system is still needed and legacy PSAP costs will be incurred in order to process 9-1-1 calls in the MESB region. When PSAPs are no longer using the legacy 9-1-1 system to process 9-1-1 calls, those legacy PSAP costs will cease.

Both the transition and NG9-1-1 costs created by these transition changes are traditionally not the responsibility of the PSAPs or the state program directly. Some legacy costs associated with legacy 9-1-1 service elements, like ALI, may still apply and would be the responsibility of the NG9-1-1 service provider.

4.1.4 NG9-1-1 Geographic Information System Costs

The importance of GIS in the NG9-1-1 operating environment will require an increase in costs associated with developing, maintaining and using GIS data at the state, MESB and PSAP levels. The GIS/Geo-based routing costs are influenced by the expected bandwidth required and ECRF / LVF requirements for all 9-1-1 call routing

in the region.

Additionally, GIS costs include a level of redundancy within the call routing framework to provide reliability and access to the NGCS functional elements using and accessing the GIS data. Typically, a vendor is required to supply reconciliation and synchronization services to maximize the readiness of data and GIS files for operation. Vendors have developed tools and systems to streamline the ongoing data update and QA/QC specifically for the NG9-1-1 market. The operational components (SI) and functions to manipulate the database once it is operational are much better served through a vendor and include:

- Data Normalization Services
- Back Office
- Hardware

Costs of completing GIS data readiness can be reduced marginally through the efforts of MnGeo, the State of Minnesota's GIS office, or other operational group that can assist in meeting the NENA NG9-1-1 GIS database requirements. Such costs are primarily in the equipment required to store and allow access to the location information. For instance, the State may create and own the GIS repository for the State but allow access to the vendor described above to embed their toolkit for data processes. This reduces the need for the GIS database to be shipped to the vendor and stored at their facility.

4.1.5 NG9-1-1 Training/Support Costs

NG9-1-1 by itself will not drive training costs at the PSAPs. There may be new ways of processing new types of 9-1-1 calls, but generally speaking, any training associated with that will be dependent on the system or application the PSAP chooses and purchases. CAD is a good example of a system where training related to NG9-1-1 capabilities may be needed but would be specific to the CAD application used. Text-to-9-1-1 and enhanced location services are additional examples of NG9-1-1 features that will require additional training. As technology changes and advances, new applications will be added to NG9-1-1 networks and will require separate training as well.

Part of the NG911 transition involves enabling the 911 system to receive video and images from the public during a critical incident response. This additional information could provide the telecommunicators and responders "eyes on the ground" during a critical incident response in a way not used before in public safety. While this technology can improve situational awareness and improve emergency response efforts, it can also have implications for the PSAPs and telecommunicators. While telecommunicators are already trained to gather critical information from callers in stressful situations, receiving graphic images and videos can place additional challenges and stress on them.

As these new capabilities become available, PSAPs in the region will need to establish a timeline and establish

procedures prior to implementing the receipt of video and image technology. Some of the considerations would be establishing data management policies and procedures, additional telecommunicator training, and support programs for telecommunicators who are exposed to traumatic imagery.

An area where NG9-1-1 may increase costs for PSAPs is in technical or specialized support related to NG9-1-1 technologies and functions. Any costs would largely depend on the PSAP in question as some PSAPs have extensive internal support staff while others rely on external parties for any technical support. NG9-1-1 brings an increased reliance on technologies like GIS, networking, and cybersecurity. GIS and cybersecurity are areas that PSAPs may not be prepared to support in a NG9-1-1 environment or have access to full time support staff necessary to operate and maintain NG9-1-1 systems related to GIS and cybersecurity.

4.2 Reported PSAP Cost and Funding Data

The PSAP survey asked respondents to provide cost and funding information related to the operation of the PSAP. 16 PSAPs provided operating budget information in response to the survey. While not intended to be an audited figure or represent all 9-1-1 costs across the region, the information does provide a measure of the scale of 9-1-1 services across the MESB region.

What is your PSAP's annual operating budget?

(16 of 25 agencies provided budgetary estimates)

$6,820,000	**$18,105,790**
$1,814,548	**$2,400,000**
$2,146,000	**$1,780,437**
$10,084,639	**$967,000**
$1,288,837	**$3,500,000**
$1,500,000	**$2,500,000**
$8,351,053	**$6,476,450**
$1,657,063	**$934,936**
Total Reported PSAP budgets	**$70,326,753**

Extrapolating from the numbers reported above, the estimated total operating budgets supporting 9-1-1 and PSAPs in the MESB region exceeds $100 million annually.

The information provided by the PSAPs identified funding sources related to local 9-1-1 operations. They include:

How is your PSAP funded?

County tax dollars/ ECN 911 funds	General Funds, Surcharge money
Tax Levy, General City Funding	County levy budget
County Levy Dollars and ECN 911 Funds	Annual budget
Member agencies within Joint Powers	Property Tax/Levy/911 special revenue
via the PD's operational budget for staffing and equipment. MN Grant Funding is used to fund 911 systems.	State Legislature appropriation through the Dept. of Public Safety / Trunk Highway Funding
PD General Operating Budget, ECN 911 Funds, Contract Fees	60% County tax levy, 40% cities covered by JPA split by call volume formula
Departmental Budget & ECN 911 Fees	County levy and E911 revenue
MAC - MSP Airport Police Department Budget	Privately
Hennepin Healthcare System	Local Transit Dollars
Annual Budget through our EMS dept.	Ridgeview Medical Center

Note the predominant combination of both local and state funds required to fund and operate MESB PSAPs. This is also the predominant funding model for 9-1-1 and Public Safety agencies across the rest of Minnesota and the country as well.

The survey asked the PSAPs to provide the amount of 9-1-1 Special Revenue Fund received in 2020. 14 of the 24 MESB PSAPs were able to provide data for the survey. While not all agencies responded with figures, the data does provide insight into the funding ratio between collected 9-1-1 surcharges and the operation of a PSAP.

How much does your PSAP receive annually from the 9-1-1 Special Revenue Fund (i.e. 9-1-1 fees)

$494,481	$68,319
$111,688.92	$2,277,333.33
$185,591	$1,379,302
$581,696	$235,680.60
$82,000	$182,315.76
$226,300	$61,000
$670,645.32	$750,132
Total Reported 9-1-1 Fees Received	$7,306,484

4.3 Additional Tools and Capabilities in the Region

This section of the report analyzes the additional tools and capabilities reported by the MESB regional PSAPs. Topics include:

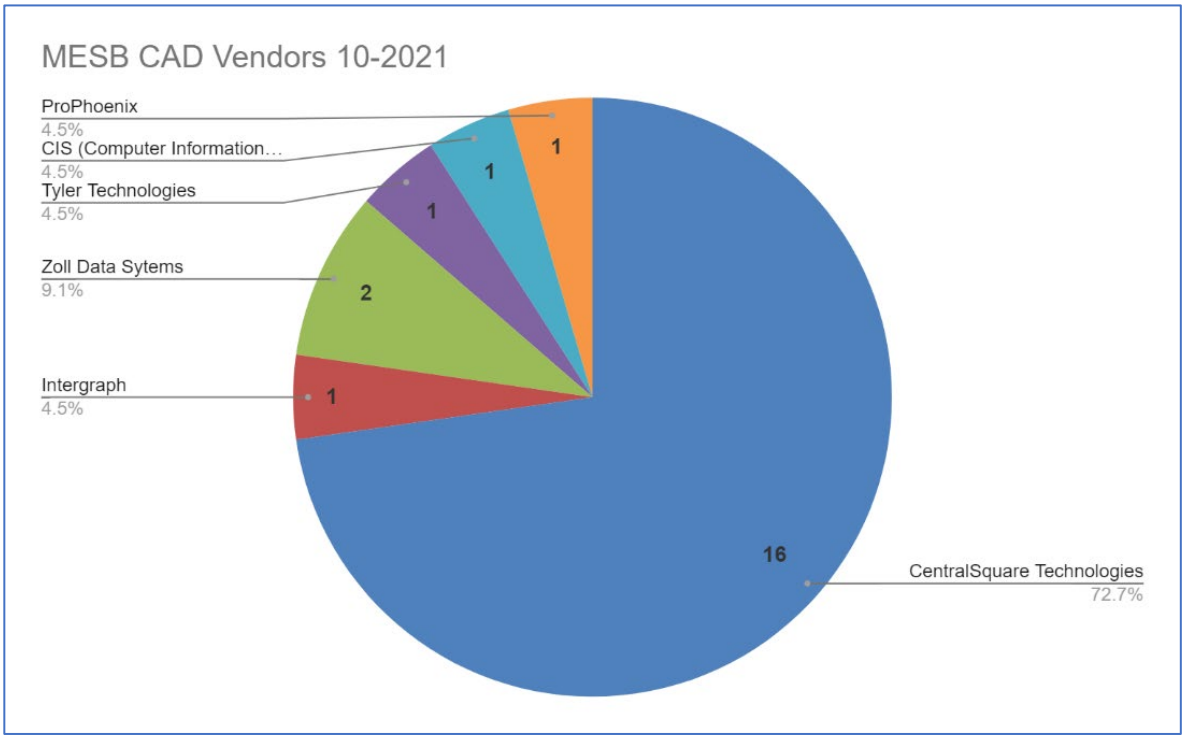
- Computer Aided Dispatch (CAD)
- Additional Data Repositories (ADR)
- 9-1-1 Call Recording
- Alerting

4.3.1 CAD in the Region

CAD is often the starting point for responding to any type of call for service – while the CHE system processes 9-1-1 and administrative calls, CAD delivers the call information, including 9-1-1 call mapping, to first responders. This data shared between the CHE to CAD includes the caller's location information, phone number, and the responding agency information.

After a call comes into CAD other critical information is attached or added to the call for service record for responders to see. That information can include a narrative of the caller's conversation with the 9-1-1 first responder, responding agency unit recommendations and assignments, and hazard and notification information. CAD is the repository and/or linkage point of all existing hazard and notification information. This type of information includes prior incidents at a location or received from a given phone number, history associated with reporting persons, call type protocols, and building pre-plans (such as floor plans, location of hazardous materials, water shut offs, etc.).

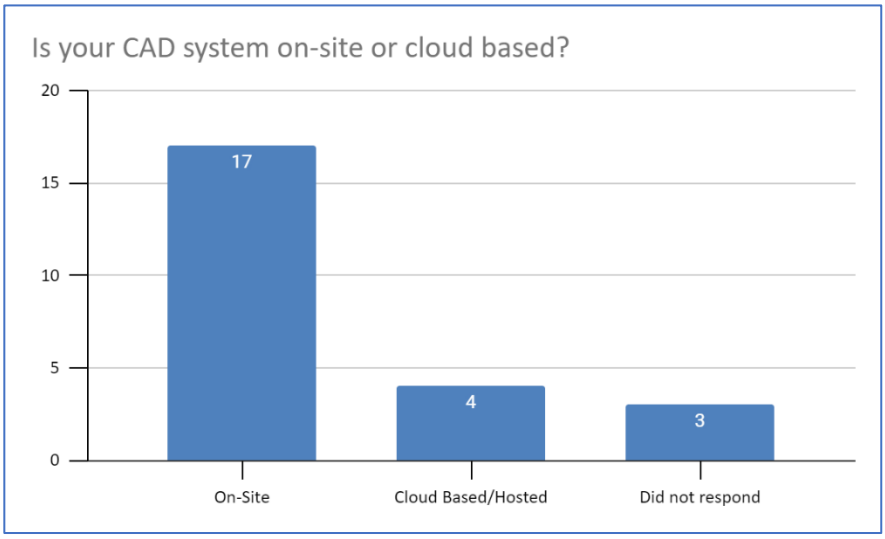
Reflective of the CAD market across the country, the MESB PSAPs reported a number of different CAD systems with different capabilities, features and functions. The chart below shows the reported CAD system breakdown by vendor.



16 PSAPs reported using a CAD application from CentralSquare Technologies. Digging deeper into the responses reveals differences within those platforms and largely indicates that each PSAP has a unique version of CAD that may be specific to the operation or the specific mission of the responding agencies.

CentralSquare Technologies Breakdown	
Enterprise CAD	4
Inform CAD	8
LETG/Zuercher	2
SunGard One Solution CAD (OSSI)	1
Zuercher Suite	1
Total	**16**

We also asked PSAPs if their CAD systems were on site (premised based) or cloud/hosted based. The chart below shows the results.



Today, as reflected in the survey data above, the CAD market is dominated by premise-based, client-server solutions. However, cloud-based and hosted solutions are a growing percentage of the market. Established solution providers are moving to cloud-based/hosted applications in keeping with the rising prominence and support for hosted cloud solutions. As these solutions emerge, they must provide the same functionality that have become standard in public safety.

The current client server models have larger costs associated with the purchase of the software, while cloud-based/hosted systems have greater costs for subscription fees. Client-server based systems require more investment in premise-based hardware and infrastructure, while cloud-based/hosted solutions tend to require greater expenditures on network bandwidth. In some situations, cloud-based solutions require expansion of high bandwidth capacity to areas where such capacity did not previously exist, or to support a larger number of users.

Matching agency needs to the configuration is the most crucial aspect of choosing between computing platforms. The computing platform needs to complement the agency's operating procedures, be scalable, and cost-effective. These variables are critical evaluators when selecting between cloud-based or dedicated server solutions. Agencies often consider leveraging a hybrid approach, which combines dedicated servers and cloud-based/hosted applications. It is expected that vendors will need to be able to meet these varied needs and provide potentially blended solutions.

4.3.2 Additional Data Repositories (ADR)

With the implementation of NG9-1-1 there will be many forms of Additional Data available to telecommunicators and emergency responders beyond the primary call data typical of a legacy 9-1-1 call system. Additional Data is information which can be associated with a given emergency call and is managed

and sourced from outside the ESInet and its associated NG9-1-1 Core Services. The NENA Standard for NG9-1-1 Additional Data (NENA-STA-012.2-2017, December 21, 2017), defines additional data in three categories. They are:

1. Additional Data for the Location
2. Additional Data for the Call
3. Additional Data for the Caller

Additional Data for the Location: provides data about the location associated with the origination of the call, beyond the primary street address or geodetic location. Additional Data for the Location contains descriptive information about the site and/or structure beyond what PIDF-LO can incorporate

Additional Data for the Call: provides contact information for the OSP or an intermediary, the service used by the caller, and any subscriber identity and contact information disclosed by the provider of the Call data

Additional Data for the Caller: provides information which describes the caller, including name, common address(es), biographic statistics, medical conditions, and emergency contact information.

Device Based Hybrid (DBH) Location Data:

Today (early 2022), the most prevalent form of available ADR data falls into the location category and derives additional data from the caller's device using a solution known as Device Based Hybrid (DBH) location. DBH is a proven location method for commercial location services. Google maps, Apple maps, Uber and like applications use DBH with particularly good results. DBH produces the highest accuracy in all settings, dense urban, urban, suburban, rural for both indoor and outdoor calls according to testing done by the FCC.

DBH relies on multiple sources of information (GPS, WiFi access points, blue tooth etc.) available to the device to determine the location of the device. Using location information from multiple sources increases accuracy and in many cases this information is constantly available and updated on the device, so location delivery is nearly instantaneous when 9-1-1 is dialed.

The level of DBH integration for 9-1-1 varies by carrier; some are limiting deployment to new devices. This means that additional data will not be available for all 9-1-1 calls or all 9-1-1 callers. The survey asked the PSAPs if there are any ADR applications in use across the MESB region. The responses are provided below.

Agencies reported using an Additional Data Repository (ADR)

RapidSOS/RapidSOS portal	13
Mapped ALI/CAD	13
Rave/Smart911 Service	3

16 PSAPs total reported using a form of ADR in daily operations. This is an excellent indication that the PSAPs of the MESB are progressive in their operations and demonstrate a willingness to employ various forms of technology resources when responding to 9-1-1 calls.

4.3.3 Recording in the Region

The survey asked PSAPs to provide information relative to the 9-1-1 call recording systems in use across the region. As expected, a number of different systems with different capabilities were reported in the table below.

PSAP Recording Systems

Verint	7
RevCord	4
Equature	4
NICE	3
Unknown	4
Higher Ground	2
Nexlog Mediaworks	1
Total	25

A particular recording capability is necessary for recording 9-1-1 calls in a NG9-1-1 system and that is the ability to record SIP sessions. The survey asked about the SIP recording capabilities of the recorders installed across the region. The results are presented in the table below.

Recorder is SIP Capable (for NG 9-1-1)

(17 of 19 Primary PSAP reported SIP capability)

Yes, SIP capable recording	**20**
Unknown	**5**
Total	**25**

Responses indicate that the majority of the recording solutions in place across the region will not require any replacement when the transition to full NG9-1-1 occurs.

4.3.4 Alerting in the Region

Alerting, station alerting, mobile alerting in general are terms used to describe the process of notifying and coordinating first responder field units and first responder resources that an emergency incident/event is in progress. The alerting function itself and the numerous tools that have evolved over the years to support this

function have allowed PSAPs to better coordinate responses and responders to produce better outcomes.

Alerting technology in and of itself has evolved from radio tone generating speaker systems in fire stations and air sirens in the middle of town to smart phone applications that send text messages and can perform other coordination functions in notifying first responders and coordinating a specific response to a specific incident.

20 PSAPs provided information related to the responder alerting applications in use across the region.

Reported Alerting Applications

Active 911/Active Alert	14
I am Responding	3
Zipit	1
First Watch	1
Fusus	1
US Digital Fire Station Alerting	4

The usage of these tools across the region to proactively manage and extend the coordination capabilities of the PSAPs is outstanding. While NG9-1-1 focuses primarily on 9-1-1 call routing and delivery and does not directly impact functions like alerting, the future only points to further integration with and usage of the data and information available in an NG9-1-1 operating environment.

-The remainder of this page is intentionally left blank -

4.4 Findings and Conclusions

The following list summarizes the findings and conclusions for MESB NG9-1-1 Assessment Report:

- The MESB PSAPs are well prepared for the transition to NG9-1-1 as evidenced by the level of investment in technology, applications, resources and funding committed to public safety across the MESB region in addition to specific 9-1-1 funding from ECN

- As more integration occurs across the MESB region on applications like CAD and CHE the more efficient the MESB PSAPs become operating as one logical entity at the systems level. Examples include CAD to CAD interoperability, hosted Call Handling Equipment and alerting applications

- The MESB PSAPs will benefit from a diverse, scalable, redundant NG9-1-1 system that delivers data and information about and from emergency events (calls, data and supplemental information).
    - The NG9-1-1 system will allow for increased situational awareness and enhance the prioritization of events based upon the additional intelligence delivered with the call.

- Once the NG9-1-1 system is operational, the MESB region will have the ability to prepare alternative arrangements, agreements including mutual aid for the PSAPs.
    - Arrangements may be developed that enhance the operational polices of the PSAPs to aid in how each PSAP interoperates and shares information and/or systems where appropriate.

- The NG9-1-1 system will provide for a common approach for Cybersecurity across all MESB PSAPs in addition to the current local efforts. This will enhance the ability to recognize, divert or isolate DDoS, TDoS and intrusions that can compromise the entire operation.

- Establishment of a centralized monitoring and reporting capability that can manage all operational components within the Service Level Agreement (SLA) and maintain integrity across all MESB PSAPS. This capability will ensure consistent monitoring and management of the services provided (ESInet, Hosted Call Handling, GIS, Telecommunications, Radio, CAD, Recording, etc.) and quick resolution of any problem or trouble with the associated provider.

Appendix A – Glossary of Terms

For the complete NENA Master Glossary of Terminology (NENA ADM-000.22.2018, 04/13/2018) please use the following link:

https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA-ADM-000.22-2018_FINAL_2.pdf

9-1-1: A three-digit telephone number to facilitate the reporting of an emergency requiring response by a public safety agency.

9-1-1 Service Area: The geographic area that has been granted authority by a state or local governmental body to provide 9-1-1 service.

9-1-1 System: The set of network, database, and CPE components required to provide 9-1-1 service.

9-1-1 Tandem: (See E9-1-1 Control Office)

Abandoned Call: A call placed to 9-1-1 in which the caller disconnects before the call can be answered by the Public Safety Answering Point (PSAP) attendant.

Additional Data: Data that further describe the nature of how the call was placed, the person(s) associated with the device placing the call, or the location the call was placed from. There are three types of Additional Data:

- Additional Data for the Call
- Additional Data for the Caller
- Additional Data for the Location

Additional Data Repository (ADR): is a data retrieval facility for Additional Data. The ADR dereferences a URI passed in a Call-Info header field or PIDF-LO <provided-by> and returns an Additional Data object block. An Identity-Searchable Additional Data Repository (IS-ADR) returns Additional Data associated with an identity.

Access Line: The connection between a customer premises network interface and the Local Exchange Carrier that provides access to the Public Switched Telephone Network (PSTN).

ALI Retrieval: A request for ALI record from the PSAP to the ALI database.

Alternate PSAP: A PSAP designated to receive calls when the Primary PSAP is unable to do so.

Alternate Routing: The capability of routing 9-1-1 calls to a designated alternate location(s) if all 9-1-1 trunks to a Primary PSAP are busy or out of service. May be activated upon request or automatically, if detectable, when 9-1-1 equipment fails or the PSAP itself is disabled.

Automatic Location Identification (ALI): The automatic display at the PSAP of the caller's telephone number,

the address/location of the telephone and supplementary emergency services information.

Automatic Number Identification (ANI): Telephone number associated with the access line from which a call originates.

Backup Public Safety Answering Point (Backup PSAP): Typically a disaster recovery answering point which serves as a backup to the Primary PSAP and is not co-located with the Primary PSAP.

Border Control Function or BCF: provides a secure entry into the ESInet for emergency calls presented to the network. The BCF incorporates firewall, admission control, and may include anchoring of session and media as well as other security mechanisms to prevent accidental, deliberate, or malicious attacks on PSAPs or other entities connected to the ESInet.

Busy Hour: The hour each day with the greatest call volume.

Busy Tone: An audible signal indicating a call cannot be completed because the called access line is busy. The tone is applied 60 times per minute.

Call: a session established by signaling with two-way real-time media and involves a human making a request for help or a non-human initiated call. Sometimes it is referred to as a "voice call", "video call" or "text call" when specific media is of primary importance. The term "non-human-initiated call" refers to a one-time notification or series of data exchanges established by signaling with at most one-way media, and typically does not involve a human at the "calling" end. The term "call" may also be used to refer to either a "Voice Call", "Video Call", "Text Call" or "Data–only call", since they are handled the same way through most of Next Generation 9-1-1. It is an element of current and anticipated 9-1-1 payloads.

Call delivery: the capability to route a 9-1-1 call to the designated selective router for ultimate delivery to the designated PSAP for the caller's ANI.

Call Processing: the system and process that permits a PSAP to receive, receive, process, and route a 9-1-1 call and other current and anticipated payloads to a PSAP within the defined environment providing complete payloads with callback and location information of the calling party to the call taker position. Call processing also includes the ability to identify and answer TDD/TT/TTY and abandoned and silent calls including complete and accurate ANI and ALI of the TDD/TT/TTY calls.

Call Transfer: The capability to redirect a call to another party.

Cell: The wireless telecommunications (Cellular or PCS) antenna serving a specific geographic area.

Cell Sector: One face of a cell antenna (typically 3-sided) that operates independently of the other sectors.

Cell Site: The location of a cell and related equipment.

Central Office (CO): The Local Exchange Carrier facility where access lines are connected to switching

equipment for connection to the Public Switched Telephone Network.

Centralized Automated Message Accounting (CAMA): An MF signaling protocol originally designed for billing purposes, capable of transmitting a single telephone number.

Circuit Route: The physical path between two terminal locations.

Civic Address: any city-style address that includes a house number and a street name is considered a Civic Address. Civic addresses include a community name that may or may not be recognized by the United States Postal Service or be MSAG valid. Civic addresses may be used as Postal address if recognized by the United States Postal Service. Civic Addresses may be used as MSAG addresses if they are an exact match to the MSAG address. A rural route delivery address or FPO or APO address is not considered a Civic address.

Class of Service: A designation of the type of telephone service, e.g. residential, business, centrex, coin, PBX, wireless.

Communication Services: includes any of the following: (a) the transmission, conveyance or routing of real-time, two-way voice communications to a point or between or among points by or through any electronic, radio, satellite, cable, optical, microwave, wireline, wireless or other medium or method, regardless of the protocol used; (b) the ability to provide two-way voice communication on the public switched network; (c) wireless enhanced 9-1-1 service; (d) wireline enhanced 9-1-1 service; (e) interconnected VoIP provider service as defined by the regulations of the FCC regulations; (f) IP -enabled service; or (g) prepaid wireless service.

Communication Service Provider: an entity that provides communication services to a subscriber or end user.

Company Identifier (Company ID): A 3-5 character identifier chosen by the Local Exchange Carrier that distinguishes the entity providing dial tone to the end user. The Company Identifier is maintained by NENA in a nationally accessible data base.

Computer Aided Dispatch (CAD): A computer based system which aids PSAP attendants by automating selected dispatching and record keeping activities.

Consolidated PSAP: A facility where one or more Public Safety Agencies choose to operate as a single 9-1-1 entity.

Customer Premises Equipment: (CPE) equipment at a PSAP.

Cutover: The activation of a new telephone call processing or switching system.

Data Base: An organized collection of information, typically stored in computer systems, comprised of fields, records (data) and indexes. In 9-1-1, such data bases include MSAG, telephone number/ESN, and telephone customer records.

Data Base Management System (DBMS): A system of manual procedures and computer programs used to

create, store and update the data required to provide Selective Routing and/or Automatic Location Identification for 9-1-1 systems.

Dedicated Trunk: A telephone circuit used for a single purpose; such as transmission of 9-1-1 calls.

Default PSAP: a PSAP that is equipped to receive incoming calls that do not contain ANI or ALI or otherwise incomplete information allowing the proper routing of a payload.

Default Routing: The capability to route a 9-1-1 call to a designated (default) PSAP when the incoming 9-1-1 call cannot be selectively routed due to an ANI failure or other cause.

Digital Logging Recorder (DLR): digital logging recorder that records date, time, audio and call detail data, and other transactions involved in the processing of calls to the PSAP.

Diverse Routing: The practice of routing circuits along different physical paths in order to prevent total loss of 9-1-1 service in the event of a facility failure.

Emergency Call: A telephone request for public safety agency emergency services which requires immediate action to save a life, to report a fire or to stop a crime. May include other situations as determined locally.

Emergency Call Routing Function or ECRF: a functional element in an ESInet which is a LoST protocol server where location information (either civic address or geo-coordinates) and a Service URN serve as input to a mapping function that returns a URI used to route an emergency call toward the appropriate PSAP for the caller's location or towards a responder agency.

Emergency Message (EM) Circuits: The special service circuits used to carry 9-1-1 calls to the PSAP.

Emergency Service Central Office Number (ESCO): The information delivered to the PSAP when there is an ANI failure between the end office and the 9-1-1 Control Office. When ANI is not available, the 9-1-1 call is default routed and the ANI display at the PSAP will be "9-1-1-0TTT" (or 9-1-1-TTTT) with TTT identifying the incoming trunk group.

Emergency Services Internet Protocol Network or ESInet: a managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing Next Generation 9-1-1 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national and international levels to form an IP-based inter-network (network of networks).

Emergency Service Number (ESN)/ Emergency Service Zone (ESZ): An ESN is a three to five digit number representing a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, or Emergency Service Zone (ESZ). The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper service agency (s).

End Office: (See central office).

End User: The 9-1-1 caller

Enhanced 9-1-1 (E9-1-1): An emergency telephone system which includes network switching, database and CPE elements capable of providing Selective Routing, Selective Transfer, Fixed Transfer, ANI and ALI.

Enhanced 9-1-1 Network Features: the components of enhanced 9-1-1 service that provide selective routing, automatic number identification and automatic location identification.

Enhanced 9-1-1 Service: a service consisting of communication network, database and equipment features provided for subscribers or end users of communication services enabling such subscribers or end users to reach a PSAP by dialing the digits 9-1-1, or by other means approved by the department, that directs calls to appropriate PSAPs based on selective routing and provides the capability for automatic number identification and automatic location identification.

Enhanced 9-1-1 Service Provider: any entity that provides 1 or more of the following 9-1-1 elements: network, database or PSAP customer premises equipment.

Enhanced 9-1-1 Systems: a distinct entity or geographical segment in which enhanced 9-1-1 service is provided, consisting of network routing elements serving as a control office and trunking connecting all central offices within a geographical segment, and including PSAPs and network used to deliver location data to PSAPs from a data base.

Enhanced 9-1-1 (E9-1-1) Control Office: The Central Office that provides the tandem switching of 9-1-1calls. It controls delivery of the voice call with ANI to the PSAP and provides Selective Routing, Speed Calling, Selective Transfer, Fixed Transfer, and certain maintenance functions for each PSAP. Also known as 9-1-1 Selective Routing Tandem or Selective Router.

Enhanced 9-1-1 (E9-1-1) Tandem Office: (See E9-1-1 Control Office)

Exchange: A defined area, served by one or more telephone central offices, within which a Local Exchange Carrier furnishes service.

Fast Busy: (see Reorder Tone)

FCC: the Federal Communications Commission.

Fixed Transfer: The capability of a PSAP attendant to transfer a 9-1-1 call to a pre-determined location by activating a single button.

Footprint: The geographic area covered by a particular wireless cell or cell sector.

Functional Element: major process, application, or appliance, including network bandwidth and bandwidth support.

Geographic Information Systems or GIS: a computer software system that enables one to visualize geographic aspects of a body of data. It contains the ability to translate implicit geographic data (such as a civic address) into an explicit map location. It has the ability to query and analyze data in order to receive the results in the form of a map. It also can be used to graphically display coordinates on a map i.e., latitude/longitude from a wireless 9-1-1 call.

Global Positioning System (GPS): A satellite based Location Determination Technology (LDT).

Grade of Service: The probability (P), expressed as a decimal fraction, of a telephone call being blocked. P.01 is the grade of service reflecting the probability that one call out of one hundred during the average busy hour will be blocked. P.01 is the minimum recommended Grade of Service for 9-1-1 trunk groups.

Immediately Redirected: the instantaneous redirection of a 9-1-1 call to a PSAP to prevent the loss of a 9-1-1 call.

Instant Recall Recorder (IRR): (see Recall Recorder)

Inter-Tandem Transfer: The capability of transferring a call over the 9-1-1 network from a PSAP served by one 9-1-1 tandem to a PSAP served by a different 9-1-1 tandem.

Interoperability: The capability for disparate systems to work together.

IP-enabled Service: a service, device or application which makes use of Internet Protocol, or IP, and is capable of entering the digits 9-1-1, or by other means as approved by the department, for the purposes of interconnecting users to the enhanced 9-1-1 systems including, but not limited to, voice over IP and other services, devices, or applications provided through or using wireline, cable, wireless, or satellite facilities or any other facility that may be provided in the future.

Legacy Network: a 9-1-1 network that is operating as a basic or enhanced 9-1-1 system and/or the existing analog-based enhanced 9-1-1 systems in the MESB region.

Legacy Network Gateway (LNG): a signaling and media interconnection appliance between analog callers in legacy wirelines/wireless originating networks and an i3 architecture so that PSAPs are able to receive emergency calls from such legacy networks.

Legacy PSAP: a PSAP that cannot process calls received via i3-defined call interfaces (IP-based calls) and still requires the use of CAMA or ISDN trunk technology for delivery of 9-1-1 emergency calls.

Legacy PSAP Gateway (LPG): an i3 functional element that supports the interconnection of the ESInet with legacy PSAPs.

Legacy Selective Router Gateway (LSRG): This gateway facilitates the routing/transfer of emergency calls between the ESInet and the legacy emergency services network. The LSRG will have to interwork location infrastructure between Next Generation 9-1-1 and legacy emergency services environments.

Local Exchange Carrier (LEC): A Telecommunications Carrier (TC) under the state/local Public Utilities Act that provides local exchange telecommunications services. Also known as Incumbent Local Exchange Carriers (ILECs), Alternate Local Exchange Carriers (ALECs), Competitive Local Exchange Carriers (CLECs), Competitive Access Providers (CAPs), Certified Local Exchange Carriers (CLECs), and Local Service Providers (LSPs).

Location Information Server or LIS: a functional element that provides locations of endpoints. A LIS can provide Location-by-Reference, or Location-by-Value, and, if the latter, in geo or civic forms. A LIS can be queried for the location of an endpoint. In either case, the LIS receives a unique identifier that represents the endpoint, for example an IP address, circuit-ID or MAC address, and returns the location (value or reference) associated with that identifier. The LIS also provides the dereferencing service, exchanging a location reference for a location value.

Location to Service Translation (LoST) Protocol: a protocol that takes location information and a Service URN and returns a URI, is used generally for location-based call routing and, in Next Generation 9-1-1, is used as the protocol for the ECRF and LVF.

Location Validation: refers to the action of ensuring that a civic address can be used to discern a route to a PSAP.

Location Validation Function or LVF: function that provides sufficient location-based information to a PSAP that allows a 9-1-1 call taker to dispatch emergency responders to a 9-1-1 call scene. The location information is provided by civic based addresses or latitude/longitude data.

Logging Recorder: A voice-band audio recorder which records to and plays from a permanent storage media such as tape or disk. Logging recorders are typically multi-channel so as to simultaneously record from several sources.

Management Information System (MIS): A program that collects, stores and collates data into reports enabling interpretation and evaluation of performance, trends, traffic capacities, etc.

Master Street Address Guide (MSAG): A data base of street names and house number ranges within their associated communities defining Emergency Service Zones (ESZs) and their associated Emergency Service Numbers (ESNs) to enable proper routing of 9-1-1 calls.

Mobile Switching Center (MSC): The wireless equivalent of a Central Office, which provides switching functions from wireless calls.

Mobile Switching Office (MSO): (See Mobile Switching Center (MSC))

Multi-line Telephone System or MLTS: a system comprised of common control units, telephones and control

hardware and software providing local telephone service to multiple end-use customers. Multi-line telephone system includes VoIP and includes network and premises based systems such as centrex, private branch exchange or pbx, and hybrid key telephone systems, but does not include key telephone systems.

National Emergency Number Association (NENA): The National Emergency Number Association is a not-for-profit corporation established in 1982 to further the goal of "One Nation-One Number." NENA is a networking source and promotes research, planning and training. NENA strives to educate, set standards and provide certification programs, legislative representation and technical assistance for implementing and managing 9-1-1 systems.

NENA i3 Standards or i3: NENA Next Generation 9-1-1 standards and requirements, including without limitation, the NENA Security for Next Generation 9-1-1 Standard and the NENA i3 Technical Requirements Documents, now available or as may become available in the future.

Network Components: any software or hardware for a control switch, other switch modification, trunking or any components of a computer storage system or database used for selective routing of 9-1-1 calls, automatic number identification and automatic location identification, including a PSAP.

NextGen Core Services: The base set of services needed to process a 9-1-1 call on an ESInet. Includes the ESRP, ECRF, LVF, BCF, Bridge, Policy Store, Logging Services and typical IP services such as DNS and DHCP. The term NG9-1-1 Core Services includes the services and not the network on which they operate.

Next Generation 9-1-1: an enhanced 9-1-1 system that incorporates the handling of all 9-1-1 calls and messages, including those using IP-enabled services or other advanced communications technologies in the infrastructure of the 9-1-1 system itself.

Next Generation 9-1-1 System or System: the Next Generation 9-1-1 emergency communication system procured under this RFS.

Open Systems Interconnection Model or OSI model: a seven layer hierarchical reference model structure developed by the International Standards Organization for defining, specifying, and relating communications protocols.

Overflow: The process of automatically rerouting calls to an alternate facility.

Payload: any multi-media that presents to the network as a call, request for emergency assistance, or an equivalent, including without limitation, real-time communication and non-real time communication, voice, text, video, images, alerts, alarms, graphics, or telematics.

P.01 Grade of Service (See Grade of Service.)

Point of Presence or POPs: the location at which an Internet service provider exchanges traffic and provides interconnect services.

Primary PSAP: a PSAP equipped with automatic number identification and automatic location identification displays, and is the first point of reception of a 9-1-1 call. It serves the municipality in which it is located.

Primary Public Safety Answering Point (PSAP): A PSAP to which 9-1-1 calls are routed directly from the 9-1-1 Control Office. (See PSAP)

Private Branch Exchange (PBX): A private telephone system that is connected to the Public Switched Telephone Network.

Private Switch ALI (PS/ALI:) A service option which provides Enhanced 9-1-1 features for telephone stations behind private switches. e.g. PBXs

Pseudo Automatic Location Identification (pALI): An ALI record associated with a pANI, configured to provide the location of the wireless cell or sector and information about its coverage or serving area (footprint).

Pseudo Automatic Number Identification (pANI): A telephone number used to support routing of wireless 9-1-1 calls. It may identify a wireless cell, cell sector or PSAP to which the call should be routed. Also known as routing number.

Public Safety Answering Point (PSAP): A facility equipped and staffed to receive 9-1-1 calls. A Primary PSAP receives the calls directly. If the call is relayed or transferred, the next receiving PSAP is designated a Secondary PSAP.

Public Switched Telephone Network (PSTN): The network of equipment, lines, and controls assembled to establish communication paths between calling and called parties in North America.

Redundancy: Duplication of components, running in parallel, to increase reliability.

Remote Call Forwarding: As utilized within Interim Number Portability, a permanent call forwarding feature that allows a call to one Directory Number to be automatically advanced to a Directory Number of another Local Exchange Carrier.

Reorder Tone: An audible tone of 120 interrupts per minute (ipm) returned to the calling party to indicate the call cannot be processed through the network. Sometimes referred to as fast busy.

Response Agency: The public safety agency having legal or consensual obligation to respond to a call for service.

Ringback Tone: A tone returned to the caller to indicate that a call is being processed.

Route Diversity: (See Diverse Routing)

Routing Number: (see pANI)

Secondary PSAP: A PSAP to which 9-1-1 calls are transferred from a Primary PSAP. (See PSAP)

Selective Routing (SR): The routing of a 9-1-1 call to the proper PSAP based upon the location of the caller. Selective routing is controlled by the ESN which is derived from the customer location.

Selective Routing Data Base (SRDB): The routing table that contains telephone number to ESN relationships which determines the routing of 9-1-1 calls.

Selective Transfer: The capability to transfer a 9-1-1 call to a response agency by operation of one of several buttons typically designated as police, fire, and emergency medical; based on the ESN of the caller.

Service: means 9-1-1 call and traffic delivery, i3 ESInet Network Services and reporting and monitoring in connection with, and service and support for the operation of, the States Network.

Service Provider: An entity providing one or more of the following 9-1-1 elements: network, CPE, or database service.

Serving Central Office: The central office (CO) from which a subscriber is served. (See Central Office)

Signaling System 7 (SS7) /Common Channel Signaling 7 (CCS7): An inter-office signaling network separate from the voice path network, utilizing high speed data transmission to accomplish call processing. (The Public Switched Telephone Network is in the process of upgrading from MF Signaling to SS7)

Single Point of Failure: A hardware or software component or sub-system which experiences a failure causing more than 50% of the total system to fail. (Ref. NENA 04-001 Reliability Objectives)

Spatial: relating to, occupying, or having the character or space. Geographical information systems store spatial data in regional databases.

System Service Provider (SSP): they entity acting as the prime 9-1-1 service provider for all calls and traffic throughout the State.

Tandem Central Office (Tandem CO): (See E9-1-1 Control Office)

Telecommunicator: As used in 9-1-1, a person who is trained and employed in public safety telecommunications. The term applies to call takers, telecommunicators, radio operators, data terminal operators or any combination of such functions in a PSAP.

Teletypewriter (TTY): Also known as TDD. A device capable of information interchange between compatible units using a dial up or private-line telephone network connections as the transmission medium. ASCII or Baudot codes are used by these units. (per EIA PN-1663)

Three-Way Calling: (see Conference Transfer)

Transfer: A feature which allows the PSAP Telecommunicator to redirect a 9-1-1 call to another location.

Transfer Key: A key which is programmed to dial a telephone number, a selective routing transfer code, or a speed dial code to accomplish the transfer of calls.

Trouble: any event that: 1) impacts the functioning or operations of a PSAP; or 2) is reported to the contractor's help desk by a PSAP or the State 9-1-1 Department.

Trouble Ticket: a tracking document that contains a concise, complete, and accurate history of the trouble from the time the trouble is reported to repair of the trouble. A trouble ticket shall include, but not be limited to, PSAP location, date and time of ticket opening, date and time of ticket closing, ticket number, detailed description of problem, all steps taken during repair efforts and reason for closing ticket.

Trunk: Typically, a communication path between central office switches, or between the 9-1-1 Control Office and the PSAP.

Trunk Group: One or more trunks terminated at the same two points.

Trunk Seizure: The point in time at which a 9-1-1 call is assigned to a trunk and acknowledgment is provided by the equipment at the distant end.

URI or Uniform Resource Identifier: a predictable formatting of text used to identify a resource on a network.

URN or Uniform Resource Name: a uniform resource identifier that uses the URN scheme and is intended to serve as persistent, location-independent resource names.

Uninterruptible Power Supply (UPS): An auxiliary power unit which provides continuous battery backup power in the event of a commercial power failure.

Universal Coordinated Time (UTC): Also known as Zulu or Greenwich Mean Time (GMT).

Voice over Internet Protocol or VoIP: a type of IP-enabled service that allows for the two-way real time transmission of voice communications and has access to the public switched network.

Wireless Enhanced 9-1-1 Service: the service required to be provided by wireless carriers under, and governed by, FCC order.

Wireless Telecommunications: The family of Telecommunications services under the heading of Commercial Mobile Radio Service. Includes Cellular, Personal Communications Services (PCS), Mobile Satellite Services (MSS) and Enhanced Specialized Mobile Radio (ESMR).

Wireline Carrier: an incumbent local exchange carrier or local exchange carrier operating in the commonwealth, or a telephone company, or any other person, corporation or entity that provides local exchange service.

Wireline Enhanced 9-1-1 Service: service provided by a wireline carrier that connects a subscriber dialing or entering the digits 9-1-1 to a PSAP.

Appendix B – MESB PSAP Survey 2021

2021 MESB PSAP 911 Systems Survey

September 2021

The Metropolitan Emergency Services Board (MESB), supported by 911 Authority, LLC, is sending you this 2021 MESB PSAP 911 Systems Survey to support the region with a number of critical 911 initiatives in the next several months. The purpose of this survey is to gather information from every primary and secondary PSAP in the MESB region.

The MESB is planning for the transition from the current 911 systems serving the 10 county Metro region, to Next Generation 911 (NG911) systems and services. It is vitally important for the MESB to represent the most current 911 operating environment of all MESB served PSAPs. As part of the transition to NG911, the MESB needs to be able to effectively communicate the technical, functional and operational requirements of the MESB PSAPs. Your support in providing critical operational data and information about your PSAP 911 systems, services and operations is greatly appreciated.

In addition to the NG911 transition planning, the MESB in cooperation with the MN ECN program are developing NG911 technical, functional, and operational requirements for a Request For Proposals (RFP) seeking statewide NG911 services. The RFP would be used to procure NG911 Core Services and Egress ESInet 911 call delivery services to the PSAPs, including MESB PSAPs starting in 2022.

The goals of the 2021 MESB PSAP 911 Systems Survey are to:

- **Identify the current inventory of PSAP call handling equipment, computer aided dispatch, and mapping systems for NG911 readiness.**
- **Determine the status of the MESB Public Safety Answering Points (PSAPs) relative to NG911 readiness and capability.**
- **Identify any other issues related to the implementation of NG911 service**
- **Assess current 911 network capability.**
- **Identify current and possible future end-user services and applications that will need to**

interface with both the current and future NG911 networks, such as CAD to CAD.

Timeline: The Survey will be distributed in September 2021, with follow up and verification taking place in October 2021.This survey is designed to take approximately 30 - 60 minutes. If you are not able to complete the survey in one sitting, your answers and information will be saved, and you will be able to pick up where you left off. Please complete the survey by October 15, 2021.

9-1-1 PSAP Information

1. PSAP Information

PSAP Name	
Site Address	
City/Town	
Zip Code	
Non-Emergency Number (10 digit line)	
PSAP 24/7 System Outage Contact Phone Number	
On Duty Email address	
Website	
Social media Link	

2. Respondent Contact Information

Name	
Title	
Respondent's Email Address	
Respondent's Phone Number	

3. Number of Call Answering Positions in your PSAP?

4. Is your PSAP a division of another agency (i.e. Sheriff's office, Police Department, or County agency)?

- ○ Yes
- ○ No
- ○ Other (please specify)

5. Other Agency information (If same as above, skip to Question 5)

Agency Name	
Address	
City/Town	
State/Province	
Zip Code/Postal Code	
Agency CEO (Chief, Sheriff)	
Phone Number	

PSAP Operational Demographics

6. Number of agencies served/dispatched by your PSAP (please provide a number, no text)

Police/Law Enforcement	
Fire (include Fire affiliated)	
EMS (agencies in this county)	
EMS (only if separate from fire)	
Other	

Additional PSAP Information

7. In the case of call overflow during heavy call volume, do your 9-1-1 calls route to another PSAP?

- ○ Yes
- ○ No

If yes, please provide name of PSAP. If no, please explain what happens to those calls or callers.

8. Does your PSAP maintain a physical backup PSAP location?

- ○ Yes
- ○ No

If yes, is the backup staffed or unstaffed?

PSAP Demographics

9. PSAP Staffing Information (provide a number, no text)

Administrative Staff	
Call Takers Full Time	
Dispatchers Full Time	
Call Takers Part Time	
Dispatchers Part Time	
Support Personnel (IT, Radio Tech, etc.)	
Dual Role Dispatcher/Calltaker Full Time	
Dual Role Dispatcher/Calltaker Part Time	
Casual Employees (i.e Civilian Clerks)	

10. Do your Telecommunicators work in dual roles while in the PSAP? (i.e. jail officer, clerical, permits, etc.)?

- ○ Yes
- ○ No

Commments

11. Shift Staffing

Day Shift	
Evening Shift	
Night Shift	

12. Staff Training

- ○ Basic Telecommunicator
- ○ Advanced Telecommunicator
- ○ Law Enforcement Protocols
- ○ Fire Dispatch Protocols
- ○ Emergency Medical Dispatch
- ○ Other (please specify)

Call Statistics

13. Number of 9-1-1 Calls in 2020?

Wireline Calls	
Wireless Calls	
VoIP Calls	
Non-Service Initialized Calls	
Transfers	
Total	

14. Does your PSAP accept Text to 9-1-1?

- ○ Yes
- ○ No

15. If yes, what method does your PSAP use?

Browser	
TTY	
IP	
Text to 9-1-1 Sessions	

16. Number of Text to 9-1-1 Calls for Service?

17. Number of Administrative Calls in 2020?

Backup PSAP Technology

18. What types of equipment do you maintain at your backup center?

- [ ] CPE/9-1-1 Call Handling Equipment
- [ ] Radio Consoles
- [ ] CAD
- [ ] 9-1-1 Trunks
- [ ] Admin/10 Digit Lines
- [ ] Other Equipment

Comments

19. How many call answering positions are available at your backup center?

20. How often do you test/occupy your backup facility?

- ( ) Always
- ( ) Usually
- ( ) Sometimes
- ( ) Rarely
- ( ) Never

21. Does another PSAP serve as your backup?

- ( ) Yes
- ( ) No

If yes, who?

22. Do you serve as a backup for another PSAP?

- ( ) Yes
- ( ) No

If yes, who?

PSAP Technology

23. Who is your 9-1-1 service provider?

24. Customer Premise Equipment (CPE, your 9-1-1 call answering equipment)
Vendor (who sold it to you)?

Manufacturer (e.g. Motorola, Positron, Solacom)	
Model & Version (e.g. Vesta Pallas or Positron Viper)	
Who provides maintenance/support for your equipment (e.g. Phone company, radio shop, manufacturer?	
How many positions?	
Is this a shared/hosted system?	
Do you have Screen Scrape Capabilities?	

25. 9-1-1 Call Recorder

Vendor (who sold it to you)	
Manufacturer (brand name)	
Version	
SIP (Session Initiation Protocol) Capable (yes or no)	
Records both 9-1-1 calls and radio dispatch (yes or no)	
Line recording (yes or no)	
Headset recording (yes or no)	
Installation Date	
Date of last update	
Does your recorder tie to your CAD system in any way?	

26. Administrative Phone System

Vendor (who sold it to you)	
Manufacturer (brand name)	
Version	
Installation Date	
Date of last update	
Integrated with 9-1-1 call taking equipment (CPE, yes, or no?)	

27. Computer Aided Dispatch (CAD) System

CAD System Name	
CAD Vendor	
Version	
Date of Installation	
Date of last update	
When does your CAD support contract end?	
Who maintains the GIS data in your CAD system?	

28. CAD System Costs

How much did you pay for your CAD system?	
How many CAD workstations do you have?	
How many CAD licenses do you have?	
How much do you pay annually for CAD support and maintenance?	
How much do you pay for Mobile?	

29. Does your current CAD system process and display hazard/alert information?

- ○ Yes
- ○ No
- ○ Other (please specify)

30. Does your CAD system allow for hazard data to be categorized by type? If so, what types?

- ○ Phone number call history
- ○ Hazards data
- ○ Location history data
- ○ Health history data
- ○ Other (please specify)

31. Does your CAD system allow for the prioritization of call hazards types/data?

- Yes
- No
- Other (please specify)

32. Can responding units see CAD call for service information and mapped location, including hazards, on the MDT's?

- Yes
- No
- Other (please specify)

33. Can a Text-to-911 session interface to or initiate a call for service in your CAD system without having to re-key the phone number, subscriber, or location information?

- Yes
- No
- Other (please specify)

34. Is your CAD system on-site or cloud based?

- On-Site
- Cloud Based/Hosted
- Other (please specify)

35. Is your CAD system shared with another agency?

- Yes
- No

If yes, what agency or agencies is your CAD system connected to?

36. Do you use any of the following? If so, please include name/vendor

RapidSOS interface	
Call taking/ALI mapping system either integrated to with CPE or stand alone, on-premise or cloud based	
Any other system fed by the ALI interface or could be affected by the change in location data delivery format/method	
Call alerting system (i.e Active911)	
Use of supplemental 9-1-1 caller data systems e.g. Smart911, RAVE	

Budget

37. How is your PSAP funded?

38. What is your PSAP's annual operating budget?

39. Does your annual operating budget include building expenses?

- ○ Yes
- ○ No
- ○ Other (please specify)

40. How much does your PSAP receive annually from the 9-1-1 Special Revenue Fund (i.e. 9-1-1 fees)

41. Please list annual costs to the following

CPE Maintenance	
ANI/ALI	
9-1-1 Trunks	
Software Licensing	
Database & Network	
CAD Maintenance	
Software Licensing	
Radio Maintenance	
Hardware Purchases	
GIS Support	
Other Hardware/Software	
Personnel	
Expense Salary, Benefits	
Are any of these costs covered by the state of MN? Please explain.	

Radio

42. Does your PSAP have METCOM loaded onto MCC7500/MCC7500E radio consoles?

How many?	
How many of your MCC7500/MCC7500E radio consoles have AES encryption?	
How many of your MCC7500/MCC7500E radio consoles have DES encryption?	
How long would it take your internal or contracted technical staff to add or update a talkgroup and load encryption keys into your MCC7500/MCC7500E radio consoles?	

43. Does your PSAP have METCOM in consolettes integrated into the PSAP's MCC7500/MCC7500E radio consoles?

How many?	
How many have AES encryption capabilities?	
How many have DES encryption capabilities?	
How long would it take your internal or contracted technical staff to reprogram and load encryption onto the consolettes?	

44. Does your PSAP have METCOM in portable/mobile radios?

How many?	
How many have AES encryption capabilities	
How many have DES encryption capabilities	
How long would it take your internal or contracted technical staff to reprogram and load encryption onto the portable/mobile radios?	

45. Question and Comments

-Nothing Follows-