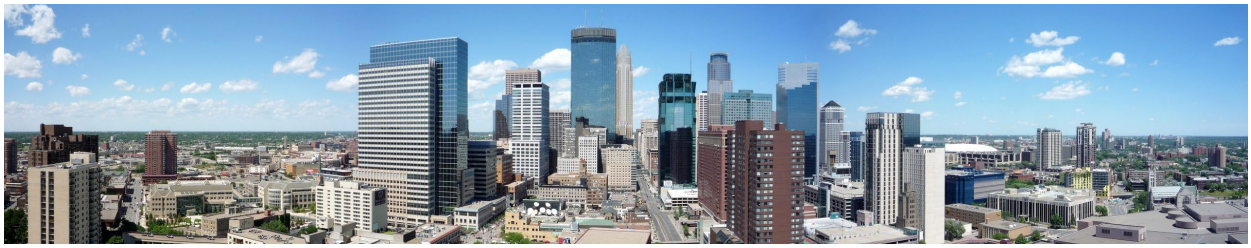

Metropolitan Emergency Services Board (MESB) Cost Study

Prepared By:

911 Authority
Connecting Public Safety with Technology

March 2024

1 Executive Summary

1.1 Overview of the Study

The Metropolitan Emergency Services Board (MESB) Cost Study is a comprehensive analysis that addresses the region's financial landscape surrounding public safety emergency communications agencies. This study spans a diverse range of categories, including personnel costs, training, facility expenses, equipment, and software services, highlighting the extensive operational requirements to sustain the 9-1-1 and ARMER systems.

This study aimed to capture the multifaceted nature of operating and maintaining critical communications infrastructure through data collection and engagement with the public safety communications community. It focuses on understanding cost drivers, budget allocation, and the impact of technology on financial planning, aiming to enhance cost efficiency and transparency. This enhanced overview provides an insight into the operational complexities and financial challenges faced by the MESB and the agencies it supports.

1.2 Key Findings

The MESB Cost Study reveals substantial investments in maintaining and enhancing the emergency communications infrastructure within the Metro Region. It emphasizes significant expenditures across various categories such as personnel, training, ARMER and operational costs, highlighting the complex nature of funding and managing public safety emergency communications. Key findings underscore the necessity for standardized reporting, collaborative cost management, and interoperability efforts to ensure fiscal transparency and efficiency. The study advocates for strategic investments and shared services to navigate the operational complexities and financial challenges faced by the MESB and the agencies it supports.

The following represents the top findings from this cost analysis:

- **Rise in Personnel Costs**: There was a 14.39% increase in Public Safety Answering Point (PSAP) personnel costs, from $66,903,091 in 2022 to $78,145,328 in 2023, with overtime representing 6.5% of total salary expenses.
- **Vacancy Rates**: The Metro Region exhibited an average vacancy rate of 16.59%, with rates across individual agencies ranging from 0% to 46%.
- **Training Costs and Hiring Rates**: Initial PSAP training comprises 82% of total training costs, with the region hiring an average of 146 employees annually, equating to 30.25% of the current workforce. However, continuing education accounts for only 5.59% of the total training investment, likely falling short of the workforce's expansive educational needs.
- **Procurement of Public Safety Applications**: PSAPs in the region independently procure and operate public safety applications, incurring one-time costs of $30,903,386 and recurring annual costs of $7,703,371. The recommendation is for

the region to adopt a common procurement strategy for these applications to leverage economies of scale, potentially resulting in significant cost savings.

- **ARMER System Tower Use and Costs**: The MESB utilizes nearly 25% of the state's ARMER system towers, with many being locally owned and maintained, contributing to $8.8M of the region's ARMER system costs. Moreover, MnDOT allocates $3,451,370 in their budget to support the MESB region's counties.
- **ECN's 9-1-1 Regional Costs**: ECN covers costs for maintaining and upgrading the 9-1-1 network infrastructure in the Metro Region, amounting to $1,589,387.

In summary, these findings underscore the necessity for targeted investments in workforce training, strategic procurement practices, and robust financial planning to optimize emergency communication services and infrastructure in the Metro Region.

RECURRING COSTS	PSAP	ARMER	MESB	ECN	MnDOT
PERSONNEL TOTAL COST	**$78,145,328**	**$5,295,413**	**$1,123,013**	**$137,952**	**$1,549,221**
Salary	$58,129,823	$4,101,226	$827,342		
Benefits & Other	$20,015,505	$1,194,187	$295,671		
RECRUITMENT & TRAINING TOTAL	**$8,977,379**	**$33,000**	**$41,075**		**$55,718**
Recruitment	$3,923,155	$33,000			
Training	$5,054,224		$41,075		$55,718
FACILITIES TOTAL	**$8,716,068**	**$2,022,229**	**$23,124**	**$1,234,216**	**$439,193**
Rent/Utilities	$6,817,668	$1,745,949	$23,124		$439,193
911Circuits/Network/NG911	$1,898,400	$276,280		$1,234,216	
OPERATIONS TOTALS	**$16,029,349**	**$285,081**	**$352,000**	**$217,219**	**$151,493**
Professional & Contracts			$186,250	$158,719	
Office Equip. & Supplies	$3,084,489	$285,081	$42,350		
Other Equip.	$2,921,328				
CHE Maint. & Costs	$1,480,122				
CAD Maint. & Costs	$4,017,152				
MDC Maint. & Costs	$283,275				
CAD-TO-CAD	$1,132,496				
Other Software & Apps	$790,326				
GIS Costs	$1,051,800			$58,500	
Emerg Notification System	$385,557				
Other Expenses	$882,804		$123,400		$151,493
RADIO TOTALS		**$5,681,097**	**$1,773,906**		**$1,255,745**
Radio Monitoring		$908,177			
Radio Site Expense			$1,773,906		$2,394
Radio Programming/Equip.		$1,452,356			$778
Radio Maint./Maint. Contract		$3,165,564			$916,460
Radio Parts & Repair		$155,000			$336,113
2023 RECURRING COST	**$111,868,124**	**$13,316,820**	**$3,313,118**	**$1,589,387**	**$3,451,370**

ONE TIME COSTS TOTALS	$30,903,386
CHE REPLACEMENT/UPGRADE	$8,797,086
CAD REPLACEMENT/UPGRADE	$20,825,085
MDC REPLACEMENT/UPGRADE	$1,281,215

The remainder of this page is left intentionally blank.

2 Introduction

2.1 Background

The Metropolitan Emergency Services Board (MESB) plays a pivotal role in ensuring public safety across the most populous region in Minnesota, including Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, Washington Counties, and the City of Minneapolis. Formed through a Joint Powers Agreement, the MESB oversees the 9-1-1 system, the metro portion of the Allied Radio Matrix for Emergency Response (ARMER) system, and Emergency Medical Services (EMS) within the Minneapolis/St. Paul metropolitan area. This board, comprising commissioners from these counties and a council member from Minneapolis, is instrumental in maintaining a high standard of emergency services across the region.

In the fall of 2023, recognizing the need for a thorough understanding of what it costs to run the Metro emergency communications system, the MESB initiated a cost study analysis. This study, conducted by 9-1-1 Authority, LLC, aimed to investigate the expenses related to 9-1-1, ARMER, IPAWS, and wireless broadband within the 10-county area.

2.2 Objectives of the Study

The objectives of this study are multifaceted, aiming to provide a comprehensive overview of the operational costs associated with providing emergency communications throughout the Metro Region. It systematically explores various financial dimensions, including staffing, training, facilities, technology, and shared services, pivotal for the seamless administration and operation of the 9-1-1 and ARMER systems. By evaluating current budget allocations, the study endeavors to enhance cost transparency and accountability, identify principal cost drivers and assess the financial impact of technological advancements on agency budgets.

Additionally, it scrutinizes personnel costs, from compensation to training, to address staffing challenges effectively. The analysis extends to risk management, offering insights into financial vulnerabilities and strategies for mitigation. Importantly, the study serves as a strategic tool for forecasting, planning future investments, and advocating for additional funding by highlighting operational necessities and potential areas for efficiency improvements. Through this study, the MESB seeks to fortify its financial planning, ensuring the region's public safety communication networks remain robust, responsive, and equipped to meet future demands, reinforcing the commitment to public safety and the well-being of the communities served.

2.3 Scope and Methodology

The Scope and Methodology section of the MESB Cost Study is refined to delineate the comprehensive approach and systematic processes adopted for the analysis. Utilizing an online survey methodology, informed by discussions with MESB staff, this approach was selected for its broad accessibility, efficiency, and real-time data collection capabilities, ensuring widespread participation across the Metro Region's public safety emergency communications agencies.

The MESB Cost Study adopted a structured approach to exploring the administrative and operational expenses within the Metro Region's public safety emergency communications network. By employing an online survey methodology, developed in close consultation with MESB personnel, in combination with onsite and virtual site visits, this strategy was designed to ensure comprehensive participation and streamline the data acquisition process. This section outlines the strategic planning, deployment of the survey, and subsequent data analysis phases, emphasizing the systematic efforts to capture a wide array of cost-related information across the 9-1-1, ARMER, IPAWS, and wireless broadband services.

Development and Deployment

Survey Design: Tailored to capture detailed administrative and operational costs, the online survey was engineered to be user-friendly, facilitating seamless access and navigation for participants across various locations within the 10-county area. The design aimed to gather data on staffing, training, facilities, equipment, software, services, and other necessities critical for sustaining operations.

Question Sets: Two distinct questionnaires for Public Safety Answering Point (PSAP) and ARMER costs were developed, recognizing the unique financial frameworks and shared expenditures between these programs. These question sets are detailed in Appendices 2 and 3 for transparency and clarity.

Pilot Testing: Conducted with select PSAP and ARMER teams to refine the survey's clarity and user experience, pilot testing was instrumental in ensuring the survey's effectiveness and the quality of data collected.

MESB On Site Visits		
Anoka County Emergency Com	Dakota County Radio Services	Minnesota State Patrol
Carver County Sheriff's Office	Eden Prairie Police Department	Ramsey Emergency Communications Center
Chisago County Sheriff's Office	Hennepin County Sheriff's Office	Scott County Sheriff's Office
City of Edina	MAC Airport Police Department	Sherburne County Sheriff's Office
Dakota 9-1-1	Minneapolis Emergency Comm. Center	Washington County Sheriff's Office

Table 2: MESB On-Site Agency Visits

Data Collection and Analysis

Survey Implementation: Launched with comprehensive instructions to facilitate agency participation, the survey period was strategically managed to maximize response rates, including extending deadlines as necessary and providing support to agencies for any queries.

Supplemental Documentation: Agencies were requested to submit their 2023 budgets and 2022 Compliance Reports, enhancing the depth of analysis through apples-to-apples comparisons.

On-Site & Virtual Visits: To validate survey responses and address any information gaps, follow-up visits were arranged, offering an opportunity for deeper engagement with the agencies and ensuring a thorough understanding of the operational costs involved.

Outcome

Summary: This methodical approach underscores a commitment to accuracy, efficiency, and inclusivity in data collection, with the ultimate goal of providing the MESB with actionable insights for future budgetary planning. The detailed staging of the process—from survey design and deployment through data collection and on-site verification—ensures a comprehensive understanding of the operational costs of emergency communications in the region.

Participation: In total 36 surveys were submitted. 14 ARMER surveys and 22 PSAP surveys were completed. There were four agencies which chose not to participate in the survey request, two primary PSAPs and two private secondary PSAPs.

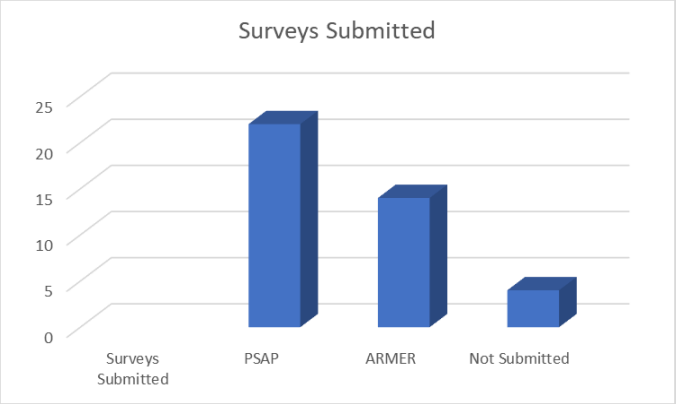

Table 3: Surveys Submitted

In summary, the MESB Cost Study's design successfully assessed the fiscal operations of public safety communications within the metropolitan region. Employing an online survey, refined by MESB staff input, and enhanced through on-site and virtual visits, the study ensured a wide-ranging and efficient data collection. The tailored surveys for PSAP and ARMER services, alongside requests for additional budgetary information, have provided a

detailed financial outlook. Note that PSAPs also provided state fiscal compliance reports to provide additional insight.

The high survey completion rates reflect the effectiveness of the study's approach, and the on-site agency visits have further validated the findings. Although shared costs between programs are complex, the structured methodology has equipped the MESB with normalized data, instrumental for strategic budgetary planning.

3 9-1-1 Operational Costs Analysis

RECURRING COSTS	PSAP		
PERSONNEL TOTAL COST	**$78,145,328**	**OPERATIONS TOTALS**	**$16,029,349**
Salary	$58,129,823	Professional & Contracts	
Benefits & Other	$20,015,505	Office Equip & Supplies	$3,084,489
RECRUITMENT & TRAINING TOTAL	**$8,977,379**	Other Equip	$2,921,328
Recruitment	$3,923,155	CHE Maint & Costs	$1,480,122
Training	$5,054,224	CAD Maint & Costs	$4,017,152
FACILITIES TOTAL	**$8,716,068**	MDC Maint & Costs	$283,275
Rent/Utilities	$6,817,668	CAD-TO-CAD	$1,132,496
911 Circuits/Network/NG911	$1,898,400	Other Software & Apps	$790,326
		GIS Costs	$1,051,800
		Emerg Notification System	$385,557
		Other Expenses	$882,804
		2023 PSAP RECURRING COSTS	**$111,868,124**

ONE TIME COSTS TOTALS	$30,903,386
CHE REPLACEMENT/UPGRADE	$8,797,086
CAD REPLACEMENT/UPGRADE	$20,825,085
MDC REPLACEMENT/UPGRADE	$1,281,215

3.1 Personnel

Personnel costs represent the most significant financial commitment in the operation of PSAPs at $78,145,328, a trend that underscores the essential nature of human capital in emergency response systems. This section specifically evaluates the changes in personnel costs from 2022 to 2023, which include salaries, benefits, overtime, and shift differentials.

From 2022 to 2023, there was a noticeable regional rise in personnel costs totaling more than 14.39%, with total personnel costs increasing from $66,903,091 in 2022 to

$78,145,328 in 2023. This rise in personnel expenses can be attributed to several factors, including salary adjustments, benefits enhancements, and a trend of increasing overtime necessitated by higher call volumes, vacancy rates, and operational demands. These changes highlight the growing costs of maintaining responsive and effective emergency services and underscore the value placed on PSAP personnel as critical infrastructure components.

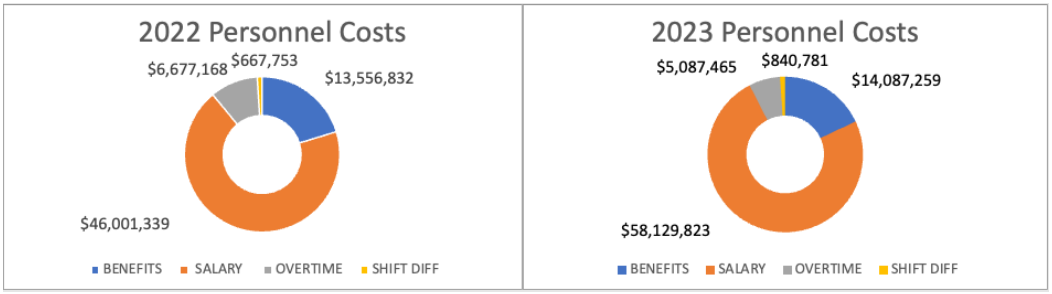

Table 4: Personnel Costs

While shift differential only accounts for 1.2% of the total personal cost, some agencies do not pay shift differential, and others cannot account for that expense separately from the salary category.

Budgeted Overtime vs. Actual Overtime Cost: Discrepancies between what agencies budgeted and actual overtime costs highlight the ongoing personnel challenges in addition to increasing workload and unexpected major events. **It has become routine to budget lower for anticipated overtime and shift money from salary savings due to ongoing vacancies.**

The average 9-1-1 call volume increased between 2022 and 2023 by 5.37% to 2,080,705, with PSAPs ranging from a decrease of -8.03% to a gain of 82.79%. In 2022, 4,315,023 computer aided dispatch (CAD) incidents were entered regionwide, 118.5% more than the 2022 call volume (1.95M).

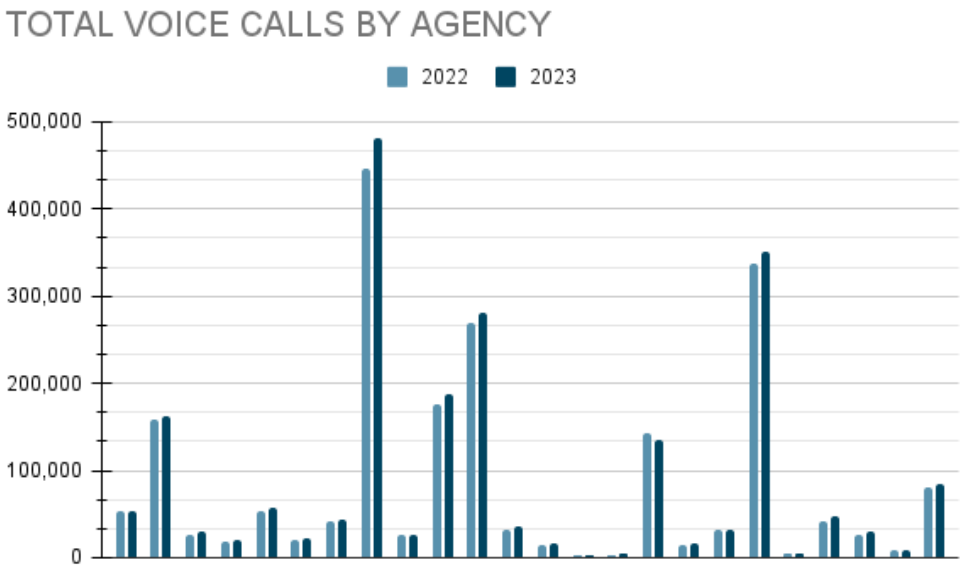

Table 5: Voice Calls by PSAP

While necessary, the upward trend in personnel costs requires a funding sustainability strategy. The correlation between increased personnel costs and operational demands, combined with the challenges of vacancy rates and turnover, underscores the critical role of human resources in the emergency response ecosystem. Investing in personnel is not merely a cost but a vital component of ensuring that the 9-1-1 system remains responsive, reliable, and effective in meeting the public's safety needs.

The analysis of personnel costs from 2022 to 2023 reveals a clear trend of increasing expenses, driven by the need to address operational challenges and ensure the effective delivery of emergency services. While these costs represent a significant portion of PSAP operations, they are essential for maintaining a system capable of responding to the community's needs efficiently and effectively. The ongoing challenge for PSAPs will be to balance these costs with the need for continuous improvement and adaptation in a dynamically changing operational environment.

3.2 Recruitment & Training

Investment in recruitment, training, and retention within PSAPs is a vital aspect of ensuring the effectiveness and reliability of the regional 9-1-1 system. The total regional recurring costs dedicated to PSAP workforce development—encompassing recruitment, initial training, continuing education, and other training expenses—account for $8,977,379 in recurring costs year over year (YoY). This section delves into these aspects individually, correlating them with the job market landscape, vacancy rates, call volume, and CAD incidents to highlight the operational implications.

Recruitment - $3,923,155

Public safety telecommunicators serve as the critical first point of contact in emergency situations, accurately gathering and relaying information. They must possess quick thinking and decision-making capabilities to assess situations rapidly and determine the necessary response. Additionally, telecommunicators need a comprehensive understanding of emergency services agency structure and standard operating procedures, alongside proficiency with CAD systems and other relevant technologies.

Recruitment in the 9-1-1 industry is complex, time-consuming, and costly due to several factors that include passing a multi-staged criminal and employment background screening, the ability to learn specialized technical and soft skills, being adaptive to a constantly changing high-pressure environment, and the emotional stability to deal with the long-term day-to-day stressors of the job.

There is a high level of urgency to hire and train new employees as the regional vacancy rate sits at 16.59%, with individual agency rates ranging from 0% to 46%. With a limited number of qualified candidates to fill roles, existing employees are faced with increased workload, mandatory overtime, and inability to get adequate time off (vacation), leading to higher levels of stress and burnout. This exacerbates retention challenges if not managed effectively.

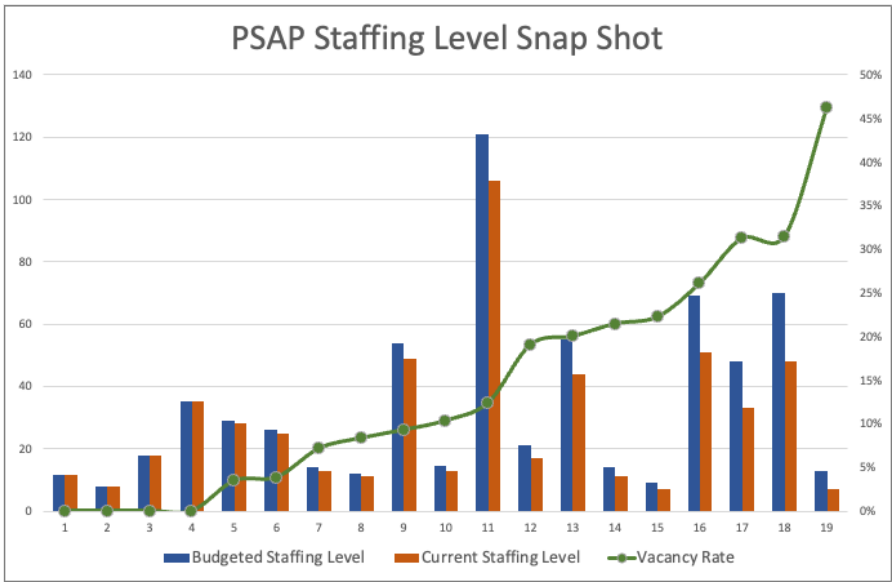

Table 6: PSAP Staffing Level Snapshot

While recruitment challenges are faced nationwide for various reasons, the Metro Region has a more atypical challenge with a competitive job market and a limited pool of qualified candidates. While having one or the other would normally create an edge for either the job seeker or employer, when both exist, several complex dynamics emerge, affecting

employers, job seekers, and the broader industry. This scenario has resulted in intensified competition among agencies to attract the limited talent necessary for their operations, leading to several key outcomes:

Wage Inflation: Agencies are offering higher salaries and more comprehensive benefits packages to attract qualified candidates from the limited pool available. The line graph below compares all statewide wages within the "Public Safety Telecommunicator" job classification with regional wage steps in the MESB region across different percentiles. Entry-level telecommunicators start just below the state's 25th percentile, indicating that even the lowest wages in the region are considerably higher than the entry-level statewide range. Regional mid wages are consistently above the statewide median wage, and regional top wages exceed the statewide 90th percentile significantly, especially at the high end, showcasing the region's willingness to pay premium wages for top talent.

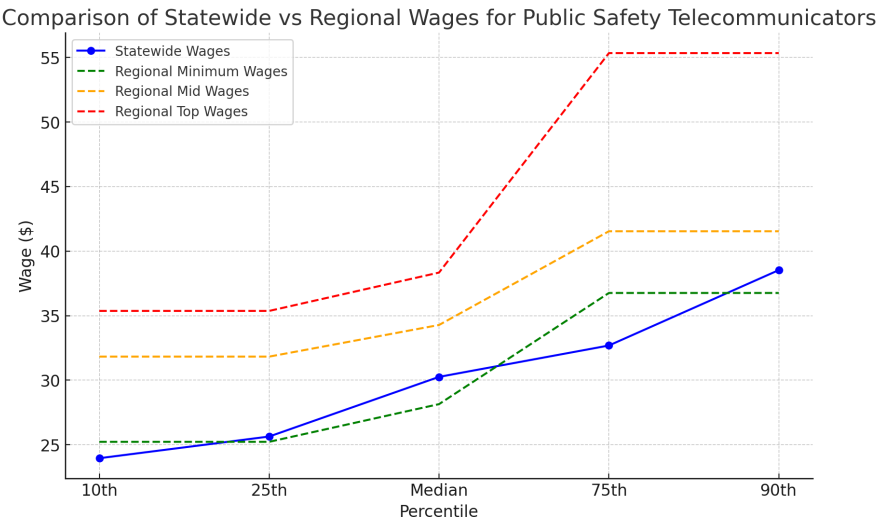

Table 7: Comparison of Statewide vs. Regional Wages for Telecommunicators

Increased Recruitment Costs: The region has made a substantial recurring financial commitment of $3.9M, investing to place more resources into their recruitment processes, utilizing specialized posting campaigns, utilizing technology platforms, and dedicating staff time to efficiently execute their recruitment programs. Some agencies have broadened their search geographically or considered candidates who may require additional training but have potential for growth.

Differentiation in Recruitment: Agencies have adopted more innovative recruitment strategies, such as offering sign-on bonuses and referral incentives, covering relocation costs, and adding more attractive benefits. Notably, intense regional competition has resulted in the cannibalization of skilled, trained resources between PSAPs, negatively impacting individual PSAPs and overall system stability.

The recruitment of public safety telecommunicators within the Metro Region is an intricate and high-stakes endeavor, reflecting the crucial role these individuals play in the emergency response framework. Despite the regional commitment to competitive compensation and diversified recruitment strategies, challenges persist, suggesting that factors beyond compensation, such as job requirements, the candidate selection process, or broader industry dynamics may also play a significant role in recruitment challenges.

The significant financial investment in recruitment and the strategic wage inflation underscores the value placed on acquiring and nurturing talent. However, the emerging trend of resource cannibalization among PSAPs signals a need for a more sustainable approach. As the region continues to navigate these complexities, it is clear that fostering a stable, skilled workforce goes beyond financial incentives; it requires a holistic strategy that addresses the multifaceted nature of recruitment, retention, and job satisfaction in the high-pressure world of public safety.

Training - $5,054,224

Training is another major area of investment, with initial training costs accounting for $4,123,108 million, continuing education totaling $282,797, and other training expenses representing $648,319. There is a notable disparity between initial and continuing education, which highlights the length and complexity of initial training. This demonstrates a potential necessity for further ongoing education and professional development opportunities, serving as avenues for career advancement and aiding in staff retention efforts. Other training expenses include expenses around certifications, conferences, equipment, supplies, and vendor provided training.

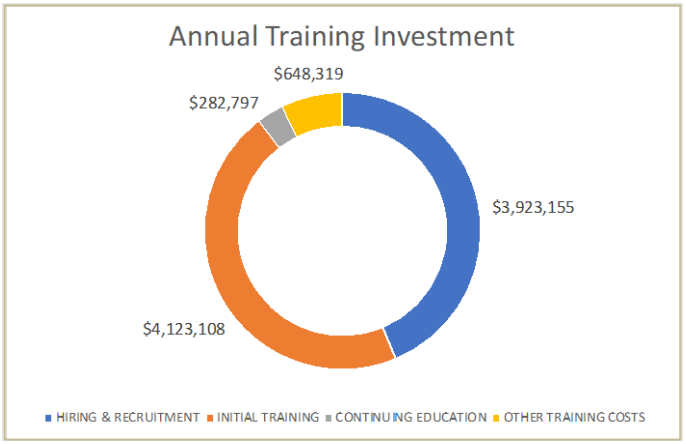

Table 8: Annual Training Investment

Initial Training

The initial training for a public safety telecommunicator is both complex and comprehensive, designed to equip new employees with the skills and knowledge necessary

to manage the full spectrum of emergency communications. Given the critical nature of their role, the training is rigorous and multi-faceted, involving classroom instruction, simulation exercises, and extensive on-the-job training (OJT).

Initial training accounts for 77.6% of the total training costs, and the region reports hiring an average of 146 employees per year or 30.25% of the current employee count. A larger initial investment is also indicative of the comprehensive training program, including initial certifications, in-classroom, and on-the-job training (OJT) that can last 6-9 months.

The complexity of the initial training can be attributed to several factors:

Technical Skills: Telecommunicators must learn to operate complex public safety technologies, which involve managing and prioritizing incoming calls, dispatching the appropriate services, and maintaining clear and accurate records of emergency responses.

Legal Knowledge: Telecommunicators must be versed in the legal aspects of emergency communications, including understanding privacy laws, jurisdictional boundaries, and the proper handling of sensitive information.

Communication Skills: Effective communication is central to the role. Trainees must learn to extract critical information from callers who may be distressed or in danger, communicate clearly with first responders, and provide life-saving instructions to callers when necessary.

Stress Management: The training also encompasses stress management techniques to prepare recruits for the high-pressure environment they will face, teaching them to remain calm and make critical decisions in emergencies.

The comprehensiveness of the training includes:

Classroom Learning: This typically covers the administrative aspects of the job, including protocols, procedures, and use of equipment.

Simulations: Simulated calls and response scenarios help to build practical skills in a controlled environment, allowing for mistakes to be made and learned from without real-world consequences.

On the Job Training (OJT): This is where theory and practice converge, as trainees work alongside experienced telecommunicators, handling actual calls under supervision. OJT is crucial as it provides hands-on experience and helps in acclimatizing the new recruits to the pace and nature of the work. The length of OJT can vary significantly depending on the agency and the individual's prior experience and learning pace. During this period, trainees gradually take on more responsibility as their competence increases, until they are considered ready to handle calls independently. This period is also used to assess the recruit's fit in the role, their ability to handle stress, and their decision-making capabilities in real-time situations.

The goal of the initial training is to ensure that by its conclusion, a new telecommunicator is not only proficient in the use of all necessary tools and protocols but is also psychologically prepared for the demands of the job. The investment in such extensive training reflects the critical importance of the telecommunicator's role in the emergency response ecosystem.

Nearly one-third of the existing workforce is hired annually, which is indicative of high attrition rates and can stem from various root causes and considerations, including:

High-Stress Nature of the Job: The role of a telecommunicator is inherently stressful, dealing with life-and-death situations on a daily basis. This can lead to burnout and job fatigue, prompting employees to leave for less stressful positions.

Extensive Training Requirements: The long and rigorous training period can contribute to attrition. Not all recruits will complete the training successfully, and some realize during the process that the job is not a good fit for them.

Shift Work and Work-Life Balance: The 24/7 nature of emergency services requires shift work, often including nights, weekends, and holidays, which can be a strain on work-life balance and family life.

Emotional Toll: Continuous exposure to traumatic situations can have a psychological impact on telecommunicators, leading to conditions such as PTSD, which may necessitate a career change.

Competitive Job Market: In the competitive job market, telecommunicators often have opportunities to move to other jobs with better pay, benefits, or working conditions.

The high rate of hiring new telecommunicators annually points to systemic issues within the recruitment and retention strategies. Addressing the root causes and enhancing support and development for telecommunicators could potentially reduce turnover, thereby stabilizing the workforce and maximizing the return on investment in employee development.

<u>Continuing Education</u>

Continuing education for telecommunicators is crucial for maintaining high service standards and adapting to the changing landscape of public safety communications. This ongoing training ensures that staff remain knowledgeable about the latest developments in technologies, changes in protocols, and emerging best practices. Programs include certifications in specialized areas, attending state and national conferences, participating in professional development, and career advancement activities in training, supervision, or specialized teams.

Continuing education and professional development are foundational to the evolution and efficacy of PSAPs. In an environment where technology, protocols, and community needs are constantly changing, the requirement for telecommunicators to stay current cannot be overstated. Regular updates in training help ensure that personnel are proficient in the

latest technologies, aware of the most recent legal requirements, and equipped with updated communication and crisis management techniques. This is not only about maintaining service standards but also about empowering telecommunicators to perform their roles with confidence and competence.

Given that continuing education only represents 5.59% of the total training investment annually, it is likely insufficient to meet the expansive educational needs of the emergency communications workforce. Underinvestment in ongoing education can lead to a knowledge gap, which may have implications for the quality of service provided. Moreover, it can affect employee engagement and satisfaction, as a lack of growth and learning opportunities is often cited as a reason for job dissatisfaction.

Continuing education can also play a pivotal role in retention. Investment in an employee's growth shows a commitment to their professional development, which can increase job satisfaction and loyalty. It can make the difference between an employee who feels stagnant and undervalued and one who feels engaged and has a clear sense of purpose and trajectory within the organization.

The investment in continuing education for telecommunicators, while currently a small fraction of the total training budget, holds significant untapped potential in improving service standards, staff competency, and retention. By bolstering ongoing education programs and establishing a structured career track for advancement that includes formal training for leadership roles, PSAPs can create a more resilient, skilled, and dedicated workforce. This strategic approach to professional development could lead to a more positive work environment, greater job satisfaction, and, ultimately, a stronger retention rate, ensuring that the investment in personnel yields long-term benefits for the organization and the community it serves.

3.3 Call Handling Equipment

Call Handling Equipment (CHE) is an essential component in the operation of PSAPs, serving as the backbone for the efficient delivery and management of emergency calls, and accounts for $10,277,208. CHE encompasses a broad range of technologies and services critical for enabling rapid response to emergency situations. These include not only the physical equipment used to handle calls but also the software and communication services that support these operations. Given its pivotal role, the costs associated with CHE are significant and can be broadly categorized into one-time costs and ongoing costs.

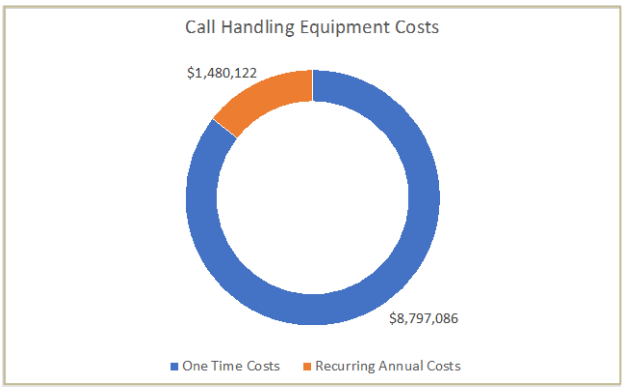

Table 9: Call Handling Equipment Costs

One-Time Costs: CHE Replacement and Upgrade - $8,797,086

One-time costs related to CHE primarily involve the replacement and upgrade of physical equipment and software systems. Of those with known dates for replacement the average number of years between replacements is 6.5 years. This ranges from some that have a replacement schedule of 3.5 years up to the longest at 12 years. Upgrades generally occur one to three times within a contract period, depending on its length. As agencies transition to Next Generation 9-1-1 (NG9-1-1), there is a high likelihood of incurring additional costs within this category as some current systems are not capable of supporting the new capabilities and technical requirements.

CHE Replacement: When equipment reaches the end of life or becomes outdated or otherwise insufficient, CHE is completely replaced with the latest technology, usually requiring an agency to conduct a Request for Proposal (RFP) process. This includes physical hardware such as consoles, workstations, headsets, and servers (cloud-based or on-premises) that form the backbone of the emergency call management process.

CHE Upgrade: Upgrades involve enhancing existing equipment and systems to improve functionality, integrate new features, or comply with updated standards and regulations. Upgrades may include software updates, the addition of new modules or functionalities to existing systems, or hardware enhancements that increase the capacity or efficiency of the call-handling process. Upgrades are crucial for keeping PSAP technology current and capable of handling emerging challenges and expectations in emergency communications, generally occurring within a contract period.

With 66% of PSAPs reporting and moderate variability in the responses, the costs incurred by the region for this category are likely significantly higher. While CHE systems are integral to ensuring that PSAPs are equipped with the latest technology to efficiently manage emergency calls, there could be considerable cost savings if the region implemented a common CHE platform using a single contract mechanism.

Ongoing Costs: CHE Maintenance and Support - $1,480,122

Ongoing costs associated with CHE cover maintenance and support services necessary for the continuous operation of call-handling systems.

CHE Maintenance: Maintenance costs cover regular servicing, repairs, and updates to both hardware and software components of the CHE. This ensures that all systems remain functional and efficient, minimizing downtime and potential disruptions to emergency services.

CHE Support: Support costs often entail annual contracts with service providers for ongoing assistance, troubleshooting, and enhancements. This category also includes expenses related to contracted communication services, cellular communications for the dispatch center and field units, and Software as a Service (SaaS) for various operational needs such as performance tracking and policy/procedure management.

With 62% of PSAPs reporting and moderate variability in the responses, the costs incurred by the region for this category are likely significantly higher. As noted above, there could be considerable cost savings if the region implemented a common CHE platform using a single contract mechanism, leveraging economies of scale.

Ensuring the operational readiness of PSAPs through adequate funding of CHE is paramount for sustaining the high-quality emergency response services that communities rely on. The comprehensive nature of CHE costs, encompassing both one-time investments in replacement and upgrades, as well as ongoing expenses for maintenance and support, reflects the complexity of these systems in PSAP operations. ***As the region continues to collaborate and work towards common interoperable initiatives, potential cost savings realized could be prioritized for other key initiatives.***

3.4 Computer Aided Dispatch & Mobile Data Computers

Computer Aided Dispatch (CAD) and Mobile Data Computers (MDC) represent central technological components within PSAPs and connection to field units, facilitating efficient emergency response coordination. With 58% of PSAPs reporting and moderate variability in responses, the total cost incurred by the region for CAD and MDC systems—amounting to $26,406,727—indicates a significant investment in these technologies. However, the disparity in reporting practices suggests that the actual expenses could be considerably higher.

CAD Systems: One-Time-Costs – $20,825,085 | Recurring Costs – $4,017,152

CAD systems are pivotal for the real-time management of emergency response resources. Yet, agencies exhibit considerable variation in how CAD-related expenses are reported. These range from direct CAD equipment costs, encompassing acquisition, installation, and maintenance of physical infrastructure, to broader categorizations under SaaS and ongoing service agreements. This diversity reflects the flexible approaches agencies adopt based on operational and financial considerations.

MDCs: One-Time-Costs – $1,281,215 | Recurring Costs – $283,275

MDCs, essential for field communication and data access, also demonstrate varied accounting practices. While some PSAPs include MDC costs within dispatch-related expenses, covering acquisition, maintenance, and support, others allocate these responsibilities to responder agencies. This variability underscores the collaborative nature of public safety operations, with some PSAPs bearing the costs directly and others relying on responder agencies to shoulder the financial burden. Additionally, there is separate accounting for wireless connectivity expenses for MDCs to establish a redundant network infrastructure.

The considerable investment in CAD systems and MDCs highlights their importance in modern PSAP operations, yet the variability in reporting practices suggests opportunities for standardization and efficiency gains. ***Implementing a common CAD platform through a unified contract mechanism could lead to substantial cost savings.*** The potential cost savings could be redirected toward other critical or strategic needs. This strategic reallocation of resources would not only enhance the operational efficiency of PSAPs but also ensure that public safety agencies are better equipped to meet the demands of emergency response in an increasingly complex and interconnected world.

3.5 Other Public Safety & Miscellaneous Applications

In addition to the CHE and CAD systems, PSAPs leverage a variety of other applications to streamline operations and improve response times. These applications include CAD-to-CAD systems and miscellaneous software solutions such as scheduling, logging recorders, mapping, data analytics, cybersecurity, and more. Together, these tools represent a moderate investment in public safety technology, with total costs amounting to $1,922,822.

CAD-to-CAD Interoperability - $1,132,496

CAD-to-CAD interoperability stands out as a pivotal enhancement in public safety operations, facilitating seamless communication and data exchange between CAD systems operated by various PSAPs. This interoperability allows for real-time sharing of incident details, resource availability, and response coordination across jurisdictions, thereby eliminating silos that can impede efficient emergency response. CAD-to-CAD interoperability offers numerous benefits, including improved situational awareness, reduced response times, and enhanced collaboration among emergency services. By enabling direct communication between disparate CAD systems, agencies can coordinate more effectively, ensuring a unified response to emergencies that may span multiple jurisdictions.

Other Software Applications - $790,326

In addition to CAD-to-CAD interoperability, PSAPs utilize various other software applications to support various aspects of public safety operations categories such as

scheduling, logging recorders, mapping Software, predictive analysis, cyber security, and several others.

With lower reporting levels and highly variable responses, there are likely missing investments that could represent a significant component of regional costs. Implementing common platforms and collaborative procurement strategies could streamline expenses. The commitment to integrating CAD-to-CAD systems and other applications underscores the ongoing effort to foster a more connected, responsive, and resilient public safety ecosystem.

3.6 Geographic Information Systems (GIS)

Geographic Information Systems (GIS) play a crucial role in modern public safety operations, with a total reported expenditure of $1,051,800 reflecting the diverse approaches to funding and managing these services among agencies. At the heart of this diversity is the varying integration of GIS within the broader emergency response framework, illustrating the flexible yet essential nature of GIS services in enhancing the effectiveness of PSAPs.

The evolution towards NG9-1-1 underscores the growing importance of GIS services. The demand for precise location-based routing, including incorporating X, Y, and Z coordinates for elevation, highlights the need for accurate and comprehensive GIS data. This trend points to potential increases in GIS-related costs as agencies strive to meet the stringent data quality requirements of NG9-1-1.

Core Components and Financial Allocation

GIS services encompass a wide range of functionalities, from direct CAD Equipment integration to the provision of vital data layers for NG9-1-1 systems. Agencies report GIS costs through several lenses:

Direct Equipment and Service Costs: Some agencies attribute specific costs to the acquisition and upkeep of GIS equipment and software, highlighting the direct investment in GIS technologies.

Software as a Service (SaaS): Reflecting a trend towards digitalization, other agencies classify GIS expenses under SaaS models, capturing the ongoing costs associated with accessing GIS capabilities via cloud-based platforms.

In-House Staffing: Acknowledging the specialized nature of GIS work, a few agencies report costs related to employing dedicated GIS staff, stressing the importance of maintaining internal GIS expertise.

A notable challenge across agencies is the comprehensive reporting of GIS-related costs, particularly those outside the immediate purview of PSAPs. Critical to NG9-1-1, the provisioning and maintenance of GIS data—such as road centerlines, address points, and elevation data—are often managed by external government departments. This separation

adds complexity to financial assessments, as PSAPs may not fully account for the investments required to support high-quality GIS data layers.

As the public safety sector moves towards more integrated and technologically advanced operations, the role of GIS is set to expand. The variability in reporting and management practices emphasizes the need for continued collaboration among agencies. Further, recognizing and addressing the full spectrum of GIS costs, especially those related to data maintenance and NG9-1-1 compliance, will be vital in ensuring a robust support system for emergency communications. As agencies continue to advance towards NG9-1-1, prioritizing investments in GIS and fostering collaborative initiatives will be essential in optimizing public safety.

3.7 Emergency Notification System and IPAWS

Emergency Notification Systems (ENS) play a vital role in public safety, enabling agencies to rapidly disseminate alerts and coordinate responses in times of crisis. The total regional costs for this category are $385,557. These systems, often integrated as part of broader dispatch operations, are essential for ensuring timely communication with the public and among emergency response teams.

Agencies responsible for public safety, including emergency management, adopt various approaches to procure and manage ENS. A common method is through SaaS or contracted communications services, indicating these systems are typically accessed via ongoing service agreements. This procurement model underscores the importance of ENS within the dispatch expenses category, highlighting their critical function in emergency operations.

A notable advancement in the field is the adoption of the Integrated Public Alert and Warning System (IPAWS). IPAWS represents a significant step forward, offering a unified interface through which officials can send comprehensive emergency alerts across multiple communication channels, thereby enhancing the reach and effectiveness of public warnings.

The stages of IPAWS implementation vary among agencies, with some fully operational and others in the process of adoption. This variation reflects the ongoing efforts to enhance alerting capabilities, demonstrating a commitment across the public safety sector to employ advanced technologies for improved emergency communication and response.

The diverse responsibility for ENS across different agencies, including those beyond traditional emergency services, emphasizes the collaborative nature of public safety efforts. As the landscape of emergency communication evolves, the continued integration of advanced systems like IPAWS will be key to advancing public safety objectives, ensuring communities are promptly informed and effectively protected during emergencies.

3.8 Facility Rent, Maintenance, Utilities, & IT Connections

The operational infrastructure of PSAPs, including facility rent, maintenance, utilities, and IT connections, represents a significant component of their operational budget, totaling

$8,607,372. These costs encompass a wide array of expenses essential for the daily functioning and reliability of emergency communication services.

Facility Rent and Utilities: A notable number of agencies reported costs associated with facility rent and utilities. The expenses in this category typically cover the rent for the physical space PSAPs occupy and the utilities that power these spaces, such as electricity, water, and heating, ensuring a conducive environment for emergency response operations.

Maintenance and IT Infrastructure: IT infrastructure maintenance encompasses a broad spectrum of expenses essential for safeguarding data integrity and facilitating seamless communication, both internally and with external partners. This includes the maintenance of fiber optic connections that provide the high-speed data transmission necessary for PSAP operations, internet services that enable access to critical information and resources, phone systems that are fundamental for communication, and communication circuits that support the robust telecommunication needs of public safety agencies.

Navigating the precise allocation of these costs can be challenging, particularly in environments where facilities are shared among various entities, leading to complex expense-sharing scenarios. The diverse range of facility-related costs plays a crucial role in ensuring the operational efficacy of PSAPs. As the sector continues to evolve, with increasing reliance on advanced technologies and interconnected systems, recognizing and accurately accounting for these expenses will be vital in maintaining the infrastructure that supports essential emergency communication services.

3.9 Office Equipment

Office equipment expenses, totaling $3,084,489, reflect the comprehensive nature of operational costs within public safety agencies. This category encompasses a wide array of essential items, from copiers and office supplies to dispatch consoles, illustrating the broad spectrum of resources required to support the administrative and operational functions of these agencies.

The effort to categorize and report these costs presents unique challenges, primarily due to the diversity of items included and the shared use of many resources. The commonality among agencies in facing difficulties in precisely isolating office-related expenses indicates a wider issue of reporting.

4 ARMER

4.1 ARMER System Background

4.1.1 State ARMER

The Allied Radio Matrix for Emergency Response (ARMER) is the comprehensive public safety radio system in Minnesota. It was developed to enhance communication among emergency responders for day-to-day operations and in response to natural and man-made

disasters. The system is governed by the Statewide Emergency Communications Board (SECB) and regional activities by seven regional emergency communications/services boards. Day-to-day oversight of the state components is managed by the Minnesota Department of Transportation (MnDOT).

The ARMER system is a Project 25 (P25), Motorola, SmartZone, 800 MHz, Phase 1, trunked radio system with six zone controllers. It is primarily used by state agencies and local police, fire, EMS, city, county, federal, and tribal governments. The primary backbone infrastructure of ARMER is maintained and operated by the MnDOT, with some infrastructure also owned by other agencies or jurisdictions, including the maintenance of those specific sites. The system utilizes 349 frequency pairs through over 4,000 base station radios at more than 400 transmitter sites, and it supports over 104,000 registered and over 94,000 active radios.

Construction of the ARMER system began in the Twin Cities metropolitan region in the late 1990s. It expanded to include greater Minnesota ARMER after being funded by the State Legislature in 2002. In late 2020, MnDOT completed the backbone of the ARMER system buildout. There are now 335 state-maintained and 100 locally maintained ARMER tower sites on the air across Minnesota that provide system radio coverage to 95% of the state's geographic area. Of the 100 locally maintained ARMER tower sites, 83 are in the Metro Region.

4.1.2 MESB ARMER

The metropolitan region portion of the ARMER system, governed by the MESB, is a shared radio system covering ten counties, including Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott, Sherburne, and Washington, and accounts for $8,807,083 of ARMER system costs.

The challenges to managing the metro area system are capacity and system enhancement costs. A finite number of frequencies are available for use in the metro area, limiting the amount of capacity that can be added.

Future enhancements to the ARMER system may be complicated by funding. Because this is a shared system, features can rarely be added by only one local subsystem; rather, they are added statewide. This could mean local governments may need to pay for enhancements, by virtue of owning system infrastructure, that they do not specifically require. If applicable, all system enhancements must be approved by the SECB and regional emergency communications/services boards.

RECURRING COSTS	ARMER		
PERSONNEL TOTAL COST	**$5,295,413**	**OPERATIONS TOTALS**	**$285,081**
Salary	$4,101,226	Professional & Contracts	
Benefits & Other	$1,194,187	Office Equip. & Supplies	$285,081
RECRUITMENT & TRAINING TOTAL	**$33,000**	Other Equip.	
Recruitment	$33,000	CHE Maint. & Costs	
Training		CAD Maint. & Costs	
FACILITIES TOTAL	**$2,022,229**	MDC Maint. & Costs	
Rent/Utilities	$1,745,949	CAD-TO-CAD	
911 Circuits/Network/NG911	$276,280	Other Software & Apps	
RADIO TOTALS	**$5,681,097**	GIS Costs	
Radio Monitoring	$908,177	Emerg. Notification Sys.	
Radio Site Expense		Other Expenses	
Radio Programming/Equip. Exp.	$1,452,356	**2023 LOCAL ARMER RECURRING COSTS**	**$13,316,820**
Radio Maint./Maint. Agreement	$3,165,564		
Radio Parts & Repair	$155,000		

4.2 Personnel Costs

Staffing Overview

The analysis of the ARMER staffing data reveals critical insights into the dynamics across the Metro Region. A key metric, the Cumulative Vacancy Rate, stands at approximately 7.79%. This rate reflects the overall staffing adequacy in technical positions across the agencies. A low vacancy rate often reflects effective recruitment and retention strategies. The agencies are largely successful in filling their budgeted positions and maintaining staff, creating workforce stability and operational continuity, as it reduces the disruptions and uncertainties associated with frequent hiring. While this indicates a relatively small gap between the budgeted and the actual number of technicians employed, it also subtly points to potential understaffing in certain areas that might require attention. Such a vacancy rate, albeit modest, necessitates a strategic approach to recruitment and budget allocation to ensure optimal staffing levels.

The tenure distribution represents a diverse range of experience levels among the staff. The most populous category is the '2-5 years' tenure group, suggesting a strong presence of moderately experienced technicians. This signifies a relatively stable workforce, with employees who have surpassed the initial learning curve and are likely contributing effectively to their roles. At the other end of the spectrum, the 'greater than 25 years' category is also significantly represented, indicating a wealth of experience and deep institutional knowledge within the staff. Such a mix of mid-level and highly experienced staff is beneficial for fostering a learning environment and ensuring continuity of operations.

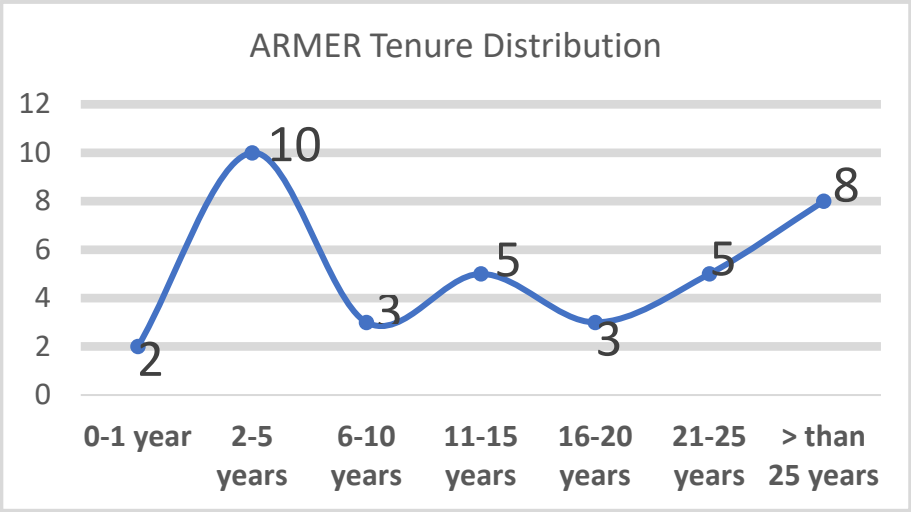

Table 10: ARMER Tenure

However, the smaller representation in the '6-20 years' tenure brackets raises concerns about potential mid-career attrition or gaps in career development opportunities. This could lead to an absence of staff moving into more senior roles in the future, which might impact long-term strategic goals and operational efficiency. Additionally, the smallest group, '<1 year', suggests either a recent slowdown in hiring or a low turnover rate at entry-level positions. While low turnover is generally positive, it could also imply limited opportunities for fresh talent infusion.

The positive implications of these findings include a stable and experienced workforce, which is crucial for maintaining high operational standards and effective service delivery. The presence of long-tenured staff offers mentorship opportunities for newer employees, fostering a culture of continuous learning and knowledge sharing. This can significantly enhance the overall skill set and efficiency of the workforce. Moreover, the insights derived from the tenure distribution and vacancy rates can be instrumental in shaping future recruitment strategies, ensuring that the agencies are well-equipped to meet their staffing needs.

Conversely, the analysis also highlights some potential challenges. The underrepresentation in certain tenure categories may indicate a risk of skill gaps emerging, particularly as the workforce evolves and older employees retire. This necessitates proactive measures in workforce planning, focusing on nurturing mid-career employees to fill impending gaps. Furthermore, even a modest vacancy rate, if concentrated in specific agencies or roles, could lead to operational challenges. Continuous monitoring and targeted recruitment efforts are essential to address these potential understaffing issues.

Personnel Costs

Cost	2022	2023
Base Salaries	$3,378,767	$4,101,226
Overtime	$59,854	$62,712
Benefits	$996,169	$1,131,475

Table 11: Personnel Costs

The ARMER personnel salary costs in 2023 are $4,101,226. Included are the base salaries for all radio personnel, including full-time and part-time (where applicable) staff. This represents a 21.4% increase from 2022. Two agencies did not report on salary data, including one that reported it being part of its Information Department (IT) budget. Two agencies also reported anticipated increases over the next fiscal year based on a compensation study and personnel movement.

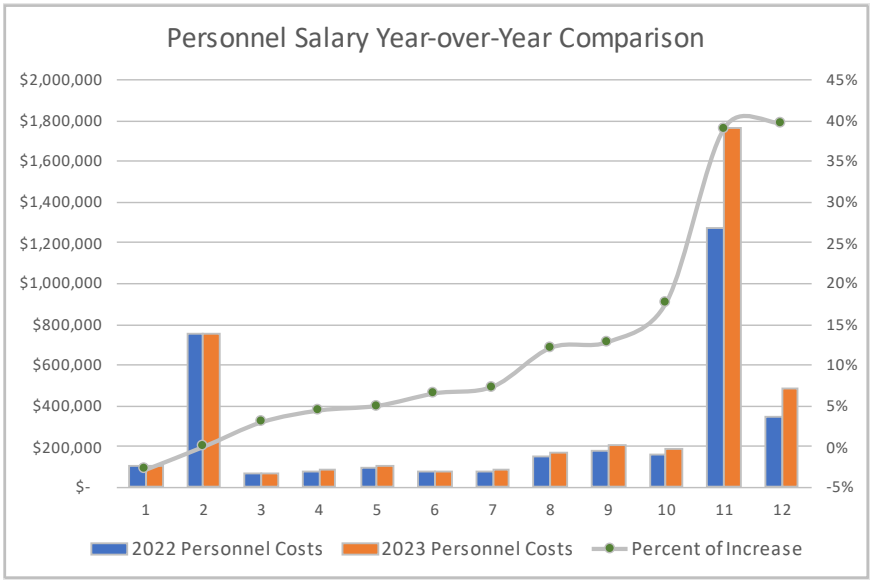

Table 12: Personnel Salary Comparison

The substantial increase in base salary costs for personnel could be attributed to several factors. Firstly, the rise could reflect adjustments for cost-of-living increases, which are necessary to keep pace with inflation and maintain a competitive position in the job market. The increase could also reflect promotions and annual step increments that reward personnel experience and longevity. Another consideration is public safety technology enhancements, often requiring expanded staffing and higher salary commitments.

Personnel Overtime

The ARMER personnel overtime costs in 2023 are $62,712. Notably, five agencies have not reported their overtime costs, with one specifying that such costs are included within its PSAP budget. Additionally, one agency operating as an Internal Service Fund (ISF) does not allocate a predetermined budget for overtime costs, signifying a flexible approach to managing such expenses as they arise. It is important to note that some ARMER staff are salaried and are not compensated for overtime.

The overtime costs show a modest increase of 4.77% Year over Year (YoY). This increment, although smaller compared to salaries, is noteworthy in the context of a 24/7 operational environment. This rise might indicate periods of heightened activity or emergencies where technicians are required to work beyond regular hours. Given the critical nature of public safety communications, such scenarios are expected, and the overtime costs can be seen as an investment in ensuring uninterrupted system availability. This increase could also be reflective of short-term staffing gaps created by the 7.79% vacancy rate currently experienced across MESB agencies. In this case, existing technicians must cover additional shifts until new hires are onboarded or during high-leave periods.

However, consistent reliance on overtime can be a concern, as it may lead to employee burnout and affect performance quality. Agencies should consider analyzing overtime trends and identifying specific periods or causes leading to increased overtime. Strategies like better shift scheduling, temporary staff during peak periods, or even redistributing workload can help manage overtime more effectively. Additionally, if overtime is linked to specific system maintenance or upgrade tasks, planning these activities during regular hours, where feasible, could help reduce overtime costs.

Personnel Benefits Costs

The ARMER personnel benefits cost in 2023 is $1,131,475. Notably, four agencies did not report their benefits costs, with one specifying that such costs are included within their Human Resources (HR). Additionally, one agency reported that it was calculated in their overall base salary costs previously provided.

The 13.58% YoY increase in benefit costs reflects an organizational commitment to employee welfare, a crucial factor in job satisfaction and retention. The increase is likely due to an expanded workforce and adjustments in base salaries, suggesting overall growth in the department. In a high-stress job like managing a 24/7 public safety radio system, ensuring robust benefits packages is essential. The enhancement of benefits alongside salary adjustments is a strategic move towards bolstering job appeal and satisfaction, thus fostering a stable and satisfied workforce.

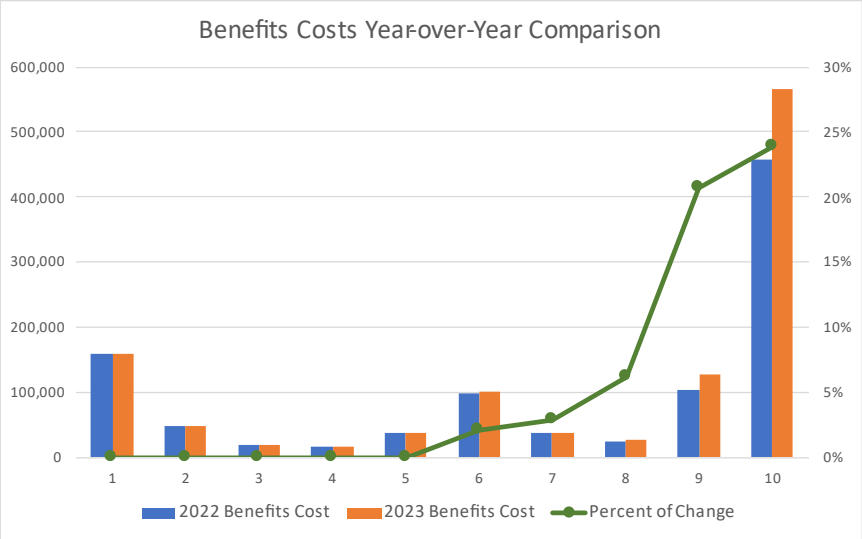

Table 13: Benefits Costs Comparison

4.3 Recruitment & Hiring

Educational Requirements & Incentivization

In evaluating hiring requirements, **92.86%** of agencies require a minimum educational qualification for their technical staff. This overwhelming majority underscores the critical importance of formal education in these roles. The high percentage of agencies requiring minimum education highlights an industry trend where formal education is considered a baseline for technical roles due to the specialized nature of the work.

There is a more divided stance on offering additional pay for staff with technical or college education, with **35.71%** of agencies indicating they do offer additional compensation. This could point to budgetary constraints, different valuation of formal education versus experience, or a belief that the required educational level is adequately compensated in the base pay. Additionally, the divided response regarding additional pay for higher education suggests varying compensation strategies among agencies. While some seek to attract more highly educated staff with additional pay, others may not see this as necessary or have budgetary limitations.

These trends reflect broader recruitment and retention strategies of the agencies, indicating different approaches to building and maintaining a skilled technical workforce. The dataset reveals a strong emphasis on formal education as a standard requirement in most agencies, coupled with diverse policies regarding compensation for advanced educational qualifications.

Recruitment Costs

The recruitment costs across the ARMER agencies are quite broad, indicating significant variability in how much each agency invests in these processes. The information, while informative, is likely not exhaustive of the true costs, as six agencies have not provided data. This absence of data could be due to various reasons, including the potential integration of these costs within other budget items or differing accounting practices.

Recruitment costs vary significantly between agencies, ranging from $500 to $15,000 for recruiting a single technician, with the cumulative total for all ARMER regions at $33,000. This disparity can be attributed to differences in agency size, complexity of the role, and the competitiveness of the job market. In addition, the need to have certifications, licenses, and specialized training are significant factors to consider in the context of recruiting and hiring new technical staff. These elements can substantially influence both the direct and indirect costs of recruitment and the overall strategy for hiring.

Extended Training Time: The time required for new technicians to acquire necessary certifications and complete specialized training can prolong the training process. This extended duration can translate to delayed full productivity and additional costs in terms of overtime, increased part-time staff hours, or reduced operational capacity.

Impact on Recruitment Strategy: When considering these training and certification requirements, agencies might prioritize candidates who already possess the necessary qualifications. This can narrow the candidate pool and increase the recruitment costs if such candidates are in high demand or expect higher compensation.

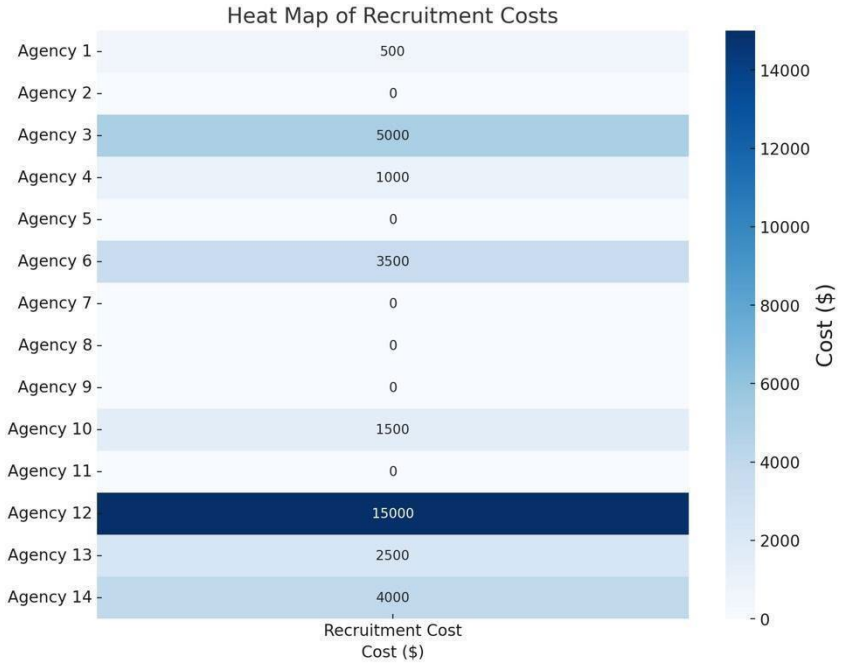

Table 14: Recruitment Costs

4.4 Training

The efficient operation of the ARMER system relies heavily on the proficiency and expertise of radio technicians, necessitating a comprehensive training and continuing education program to ensure optimal performance and reliability. This analysis focuses on evaluating the costs associated with initial training and continuing education for these personnel, drawing on survey data collected from member agencies.

Initial Training

Initial training for new technicians represents a significant investment by agencies, with an average cost of $34,688. This figure, however, shows considerable variability, ranging from $5,000 to $90,000. These costs encompass certifications, licenses, technology-specific training, equipment maintenance, and familiarity with required policies and procedures. It's notable that only 57% of agencies provided responses to questions regarding initial training costs, suggesting that the actual average costs could vary, and total regional costs would be moderately higher if all agencies had reported.

Increased Initial Investment: Training new staff who require certifications, licenses, and specialized education, such as ARMER-specific training or some combination, can increase the initial investment significantly. These costs include fees for certification courses, examinations, training materials, and the time spent by existing staff to train new hires.

Continuing Education

Continuing education is critical for maintaining the skills and knowledge of both technicians and supervisors within the ARMER system. According to the survey, approximately 70.4% of full-time technicians participate in continuing education annually. The average annual cost for technician continuing education is $3,226, while supervisor continuing education costs an average of $3,101. This ongoing education ensures that personnel remain current with the latest technologies and best practices in emergency communication systems.

The reported annual expense for all continuing education activities averages $5,802, with a range from $600 to $15,000. This variance highlights the different scales and scopes of continuing education programs across agencies. Moreover, the total regional costs for training equipment and supplies amount to $203,807, indicating a substantial investment in resources necessary to support effective training programs.

The investment in both initial training and continuing education for ARMER technicians and supervisors is a critical component of ensuring the efficiency and reliability of emergency communication systems. The data suggests a strong commitment among agencies to maintain a highly skilled workforce, with significant financial resources allocated to training and professional development. This investment not only enhances the operational capabilities of the ARMER system but also contributes to the overall safety and well-being of the communities served by these agencies. The variability in training costs reflects the tailored approach to meeting the specific needs of each agency, underscoring the

importance of flexible and adaptive training programs in the dynamic field of emergency communications.

4.5 ARMER Towers and Facilities

The ARMER system's infrastructure is a critical component of the region's public safety communication network, facilitating seamless coordination among emergency services. The maintenance and operational costs of this system play a significant role in the overall budget of member agencies.

Tower Costs

Rent: The dataset indicates varying costs associated with renting tower sites, both self-owned and shared. While some agencies benefit from the reduced expenses of self-owned sites, others incur costs through shared arrangements, highlighting the collaborative nature of the ARMER system's infrastructure. The total regional annual rent cost for self-owned tower sites is $75,767, ranging from $1.00 to $35,000. Shared tower sites account for a total of $390,996, ranging from $5,305 to $180,000 for annual rent.

Utilities: Tower utility costs cover electricity, water, sewage, internet, and phone services essential for the continuous operation of communication equipment. These utilities ensure that tower sites remain functional under all conditions, a critical factor for the reliability of emergency communication services. The total regional cost of tower utilities is $1,354,953. However, it is important to note that while 72.8% of agencies reported on power, only one agency reported in each of the other utility categories.

Maintenance and Network Connections: Regular maintenance and robust network connections are vital for the upkeep of tower infrastructure. This includes the maintenance of physical structures and the network connections that support data transmission and communication links across the region. With 54.5% of agencies reporting, the total regional cost of tower maintenance and network connections is $156,475, and network connection costs of $99,158.

Administrative Facility Costs

Rent and Utilities: Similar to tower sites, administrative facilities incur rent and utility expenses. These costs ensure that the spaces housing essential operational staff and equipment are conducive to efficient work processes, supporting the broader mission of the ARMER system.

Maintenance and Network Connections: The upkeep of administrative facilities and their network connections is crucial for the smooth operation of emergency services. This includes maintaining the integrity of physical spaces and ensuring reliable network connectivity for administrative operations.

As only a small percentage of agencies responded to requests for these costs, they were rolled up to one aggregate regional total of $276,280.

Region-Level Costs and Implications

The total costs associated with the operation and maintenance of ARMER towers and administrative facilities represent a significant portion of the region's public safety budget. These expenditures not only ensure the physical upkeep of essential infrastructure but also support the technological and operational readiness of the emergency communication network.

The diversity in costs across agencies reflects the varying scales of operation and the different strategies employed to manage these expenses. Shared site arrangements and collaborations between agencies can offer cost-saving opportunities, demonstrating the value of regional cooperation in managing the ARMER system.

The investment in the operational infrastructure of ARMER towers and administrative facilities is fundamental to the effectiveness and reliability of emergency communication services within the Metropolitan Emergency Services Board region. As the demand for advanced communication technologies grows, understanding and managing these costs will remain a critical focus for ensuring the sustainability of public safety operations. This analysis underscores the importance of strategic planning and regional collaboration in optimizing the performance and financial management of the ARMER system's infrastructure. There was a high variability in the participation of agencies in this section. To gain a complete picture of operating costs additional data is needed for evaluation.

4.6 Office Equipment & Supplies

Office equipment and supply expenses, totaling $285,081, were reported by ARMER agencies. This category encompasses a wide array of essential items, from copiers and office supplies to radio consoles, illustrating the broad spectrum of resources required to support the administrative and operational functions of these agencies.

The effort to categorize and report these costs presents unique challenges, primarily due to the diversity of items included and the shared use of many resources within jurisdictions. The commonality among agencies in facing difficulties in precisely isolating office-related expenses indicates a wider issue of reporting.

4.7 Radio System Monitoring

The aggregate regional costs reported by ARMER agencies for this category is $908,177 and include system monitoring of the Motorola radio system, network monitoring, and other systems monitoring. Notably, 45% of agencies contributed costs to at least one of these costs.

4.8 Radio Costs

The financial aspects of radio equipment, encompassing programming, maintenance, battery replacements, and associated costs, reveal a significant investment by agencies in maintaining robust and efficient communication systems totaling $4,772,920.

Programming Costs: While 91% of agencies report programming their own radio equipment, only 3 agencies have reported specific programming costs, totaling $1,379,300. This discrepancy suggests that while programming is a common practice, the financial reporting on this aspect is not uniformly captured or possibly is absorbed into broader operational budgets for most agencies.

Maintenance Costs: A total regional maintenance cost of $1,285,197 was reported, indicating significant investment in maintaining tower equipment. This activity is predominantly handled by internal personnel, as indicated by 63.6% of agencies, showcasing the reliance on in-house expertise for such critical operations.

Battery Replacement and Charger Costs: The costs for battery replacement across the region totaled $138,700, with additional expenses for radio charger costs amounting to $16,300. These figures underline the operational expenses associated with ensuring that radio equipment remains functional and reliable.

Motorola Maintenance Agreement: The vast majority of agencies, excluding one, reported costs associated with Motorola Maintenance Agreements, totaling $1,880,367 for the region. This expense highlights the significant investment in maintaining service agreements with major equipment providers, ensuring the reliability and efficacy of critical communication tools.

Programming Equipment Costs: Reported at $73,056 for the region, these costs further contribute to the financial considerations agencies must manage to ensure their radio programming capabilities are up-to-date and effective.

These financial figures, derived from the survey responses, provide a comprehensive overview of the costs associated with radio equipment within the Metro Region. They illustrate the extensive investment in both internal capabilities and external services to maintain a reliable and efficient communication infrastructure critical for public safety operations. The reliance on internal personnel for maintenance tasks further emphasizes the need for skilled technicians and the value of in-house expertise in managing these complex systems efficiently.

5 Metropolitan Emergency Services Board (MESB)

RECURRING COSTS	MESB		
PERSONNEL TOTAL COST	**$1,123,013**	**OPERATIONS TOTALS**	**$352,000**
Salary	$827,342	Professional & Contracts	$186,250
Benefits & Other	$295,671	Office Equip. & Supplies	$42,350
RECRUITMENT & TRAINING TOTAL	**$41,075**	Other Equip.	
Recruitment		CHE Maint. & Costs	
Training	$41,075	CAD Maint. & Costs	
FACILITIES TOTAL	**$23,124**	MDC Maint. & Costs	
Rent/Utilities	$23,124	CAD-TO-CAD	
911 Circuits/Network/NG911		Other Software & Apps	
RADIO TOTALS	**$1,773,906**	GIS Costs	
Radio Monitoring		Emerg. Notification Sys.	
Radio Site Expense	$1,773,906	Other Expenses	$123,400
Radio Programming/Equip. Exp.		**2023 MESB RECURRING COSTS**	**$3,313,118**

The MESB plays a pivotal role in coordinating the emergency communications infrastructure within the metropolitan region, including the ARMER radio system, regional 9-1-1 system, GIS, and coordination of the regional EMS system. This responsibility ensures effective governance, oversight, and resource allocation toward maintaining and enhancing the region's capabilities.

The MESB's operating costs total $3,313,118 across several categories including personnel, training, ARMER, and operational expenses. These allocations are directed towards sustaining and improving the operational efficiency and responsiveness of emergency services within the metropolitan area.

The MESB has a comprehensive approach to supporting emergency services, encompassing administrative, technological, medical, and communication needs. The MESB's proactive management and strategic investment in the region's emergency services infrastructure ensure effective coordination of the largest region in the state.

6 State of Minnesota Programs

6.1 Emergency Communications Network (ECN)

RECURRING COSTS	ECN		
PERSONNEL TOTAL COST	**$137,952**	**OPERATIONS TOTALS**	**$217,219**
Salary		Professional & Contracts	$158,719
Benefits & Other		Office Equip. & Supplies	
RECRUITMENT & TRAINING		Other Equip.	
Recruitment		CHE Maint. & Costs	
Training		CAD Maint. & Costs	
FACILITIES TOTAL	**$1,234,216**	MDC Maint. & Costs	
Rent/Utilities		CAD-TO-CAD	
911 Circuits/Network/NG911	$1,234,216	Other Software & Apps	
		Emerg. Notification Sys.	$58,500
		Other Expenses	
		2023 ECN METRO 9-1-1 RECURRING COSTS	**1,589,387**

The Minnesota Department of Public Safety's (DPS) Emergency Communication Networks Division (ECN) plays a crucial role in the state's public safety and emergency response infrastructure. It oversees the Statewide 9-1-1 Program, the ARMER radio communications network, the interoperability program, IPAWS, and a statewide wireless broadband initiative in coordination with FirstNet. In 2024, DPS plans to move all programs except 9-1-1 to its Homeland Security and Emergency Management (HSEM) division. ECN is integral to ensuring that Minnesota residents and public safety responders have multiple and reliable means of communication before, during, and after emergencies. It provides leadership in setting the vision, priorities, and technical roadmap for interoperable communications, alerts, and warnings across the state.

In 2023 the ECN allocated $9,921,795 from the 9-1-1 Special Revenue Fund to primary PSAPs within the Metro Region, as mandated by statute. These funds serve various purposes across PSAPs, with some utilizing them to cover routine annual expenses, while others reserve them for significant one-time investments, such as upgrading critical infrastructure like their CHE or other 9-1-1 systems. These allocated funds provided by ECN are not factored in as an expense to avoid potentially inflating the actual expenses.

The costs currently covered by ECN for the Metro Region focus on various 9-1-1 specific cost categories. These costs reflect the financial investments necessary to maintain and enhance the state's emergency communications infrastructure, ensuring robust and reliable 9-1-1 services. The costs were determined by using a percentage of the overall figures provided by the ECN that would cover the MESB region. These costs are summarized as follows:

Personnel Costs: This category includes salaries and benefits for 4 full-time employees and 3 contractors. The total personnel costs amount to $137,952.

Metro PSAP ALI Costs: These are direct costs associated with the Automatic Location Identification (ALI) for PSAPs in the Metro Region, totaling $100,485. ALI costs are crucial for accurately identifying the location of emergency calls, a key component of effective emergency response.

ESINet Annual Costs: The Emergency Services IP Network (ESINet) costs were estimated based on one month's expenses and then extrapolated to a full year, totaling $280,945. The ESINet represents the modernization of the 9-1-1 network to an IP-based system, enhancing the efficiency and reliability of 9-1-1 services.

NG 9-1-1 Network Costs: Utilizing the third optional year of the state contract to estimate costs, the NG 9-1-1 network expenses for the region are $852,786. This next-generation technology is pivotal for supporting advanced communication capabilities, including location-based call routing, text-to-9-1-1, and video and image transmission to emergency services.

Other Expenses: This category encompasses costs related to Sinch and Radius ALI Map services, totaling $217,219. Sinch is integral to the infrastructure supporting the voice ingress for the MESB area as well as for the rest of MN. All incoming voice calls (wireless, VoIP, and wireline) feed into the Sinch Ingress network, with any employing TDM/SS7 converted to the Session Initiation Protocol (SIP). The Sinch output in turn feeds into the Core Routing Services provided by Lumen.

The total regional costs for maintaining and upgrading the 9-1-1 network infrastructure in the Metro Region amount to $1,589,387. This comprehensive investment reflects the commitment to ensuring the highest standards of safety and emergency responsiveness for the residents of Minnesota, emphasizing the critical role of ECN in facilitating seamless and efficient emergency communications.

The remainder of this page is left intentionally blank.

6.2 Minnesota Department of Transportation (MnDOT)

RECURRING COSTS	MnDOT		
PERSONNEL TOTAL COST	**$1,549,221**	**OPERATIONS TOTALS**	**$151,493**
Salary		Professional & Contracts	
Benefits & Other		Office Equip & Supplies	
RECRUITMENT & TRAINING TOTAL	**$55,718**	Other Equip	
Recruitment		CHE Maint & Costs	
Training	$55,718	CAD Maint & Costs	
FACILITIES TOTAL	**$439,193**	MDC Maint & Costs	
Rent/Utilities	$439,193	CAD-TO-CAD	
911 Circuits/Network/NG911		Other Software & Apps	
RADIO TOTALS	**$1,255,745**	Emerg Notification Sys	
Radio Monitoring		GIS Costs	
Radio Site Expense	$2,394	Other Expenses	$151,493
Radio Programming/Equip	$778	**2023 MnDOT ARMER RECURRING COSTS**	**$3,451,370**
Radio Maint/Maint Contract	$916,460		
Radio Parts & Repair	$336,113		

The cost analysis for the Metro Region's share of state ARMER system costs, under the financial coverage of MnDOT, is based on the proportional representation of ARMER system towers within the region. This proportion, calculated as 24.78% of the total state towers, informs the allocation of regional costs from the statewide operation and maintenance budget. The assessment reveals a total regional cost of $3,451,370, broken down into the following categories:

Labor-Related Costs: The backbone of any operational system is its workforce, and for the ARMER system in the Metro Region, labor costs, including salaries, benefits, and training for technical staff responsible for maintenance and operations, amount to $1,549,221. This category underscores the investment in human resources essential for the system's reliability and efficiency.

Operations: Operational expenses cover the day-to-day activities required to keep the ARMER system functional. This includes utilities, site rentals, network services, and other logistical needs. For the Metro Region, these costs are accounted for at $1,563,642, reflecting the substantial ongoing investment needed to sustain system readiness and performance.

Parts and Repair Services: Maintenance of the ARMER infrastructure, including tower sites, radio equipment, and associated hardware, necessitates regular parts replacement and repair services. The cost associated with these critical activities is $336,113 for the

Metro Region. This ensures all system components are in optimal working condition, minimizing downtime and enhancing service reliability.

Other Costs: Encompassing a range of miscellaneous expenses not classified under the previous categories, such as facilities and ARMER transport upgrades, these costs total $2,394.

In conclusion, the ARMER system's operational and maintenance costs within the Metro Region, as covered by MnDOT funding, highlight the substantial investment in ensuring a robust and responsive emergency communication network. The detailed cost breakdown facilitates transparency and accountability in the management of this critical public safety infrastructure.

7 Conclusion

The MESB Cost Study reveals substantial investments in maintaining and enhancing the emergency communications infrastructure within the Metro Region. It emphasizes significant expenditures across various categories such as personnel, training, ARMER and operational costs, highlighting the complex nature of funding and managing public safety emergency communications. Key findings underscore the necessity for standardized reporting, collaborative cost management, and interoperability efforts to ensure fiscal transparency and efficiency. The study advocates for strategic investments and shared services to navigate the operational complexities and financial challenges faced by the MESB and the agencies it supports.

The following represents the top findings from this cost analysis:

- **Rise in Personnel Costs**: There was a 14.39% increase in PSAP personnel costs, from $66,903,091 in 2022 to $78,145,328 in 2023, with overtime representing 6.5% of total salary expenses.
- **Vacancy Rates**: The Metro Region exhibited an average vacancy rate of 16.59%, with rates across individual agencies ranging from 0% to 46%.
- **Training Costs and Hiring Rates**: Initial PSAP training comprises 82% of total training costs, with the region hiring an average of 146 employees annually, equating to 30.25% of the current workforce. However, continuing education accounts for only 5.59% of the total training investment, likely falling short of the workforce's expansive educational needs.
- **Procurement of Public Safety Applications**: PSAPs in the region independently procure and operate public safety applications, incurring one-time costs of $30,903,386 and recurring annual costs of $7,703,371. The recommendation is for the region to adopt a common procurement strategy for these applications to leverage economies of scale, potentially resulting in significant cost savings.
- **ARMER System Tower Use and Costs**: The MESB utilizes nearly 25% of the state’s ARMER system towers, with many being locally owned and maintained,

contributing to $8.8M of the region's 9-1-1 system costs. Moreover, MnDOT allocates $3,451,370 in their budget to support the MESB region's counties.

- **ECN's Coverage of Regional Costs**: ECN covers costs for maintaining and upgrading the 9-1-1 network infrastructure in the Metro Region, amounting to $1,589,387.

These findings underscore the necessity for targeted investments in workforce training, strategic procurement practices, and robust financial planning to optimize emergency communication services and infrastructure in the Metro Region.

APPENDIX 1

RECURRING COSTS	AGENCY				
	PSAP	ARMER	MESB	ECN	MnDOT
PERSONNEL TOTAL COST	**$78,145,328**	**$5,295,413**	**$1,123,013**	**$137,952**	**$1,549,221**
Salary	$58,129,823	$4,101,226	$827,342		
Benefits & Other	$20,015,505	$1,194,187	$295,671		
RECRUITMENT & TRAINING TOTAL	**$8,977,379**	**$33,000**	**$41,075**		**$55,718**
Recruitment	$3,923,155	$33,000			
Training	$5,054,224		$41,075		$55,718
FACILITIES TOTAL	**$8,716,068**	**$2,022,229**	**$23,124**	**$1,234,216**	**$439,193**
Rent/Utilities	$6,817,668	$1,745,949	$23,124		$439,193
911Circuits/Network/NG911	$1,898,400	$276,280		$1,234,216	
OPERATIONS TOTALS	**$16,029,349**	**$285,081**	**$352,000**	**$217,219**	**$151,493**
Professional & Contracts			$186,250	$158,719	
Office Equip. & Supplies	$3,084,489	$285,081	$42,350		
Other Equip.	$2,921,328				
CHE Maint. & Costs	$1,480,122				
CAD Maint. & Costs	$4,017,152				
MDC Main.t & Costs	$283,275				
CAD-TO-CAD	$1,132,496				
Other Software & Apps	$790,326				
GIS Costs	$1,051,800			$58,500	
Emerg. Notification System	$385,557				
Other Expenses	$882,804		$123,400		$151,493
RADIO TOTALS		**$5,681,097**	**$1,773,906**		**$1,255,745**
Radio Monitoring		$908,177			
Radio Site Expense			$1,773,906		$2,394
Radio Programming/Equip.		$1,452,356			$778
Radio Maint./Maint .Contract		$3,165,564			$916,460
Radio Parts & Repair		$155,000			$336,113
2023 RECURRING COSTS	**$111,868,124**	**$13,316,820**	**$3,313,118**	**$1,589,387**	**$3,451,370**
ONE TIME COSTS TOTALS	$30,903,386				
CHE REPLACEMENT/UPGRADE	$8,797,086				
CAD REPLACEMENT/UPGRADE	$20,825,085				
MDC REPLACEMENT/UPGRADE	$1,281,215				

APPENDIX 2

ARMER Operational Cost Survey

The objective of this survey is to determine the present operational expenses of PSAPs within the 10-county area. This encompasses costs tied to staffing, training, facilities, equipment, software, services, and other essential expenditures for sustaining the 9-1-1 operation. Additionally, the survey aims to pinpoint shared expenses across various agencies, applications, equipment, and services, taking into account secondary PSAPs as well.

Section 1: General Information

A. Demographics (0%)

When completing this survey please answer as if you had full staffing.

1. Agency name:

2. Is your agency part of a PSAP?

3. Do you have an ARMER system administrator?

B. Metrics (0%)

4. How many outages has your subsystem experienced in the last 12 months?

5. How many outages resulted in zero radio transmissions for more than 2 hours?

6. What were the primary root causes of your outages? (Check all that apply)

- a. Power
- b. Weather
- c. Microwave fading
- d. Other (please specify)

7. How many sites are in the agency's subsystem?

8. In 2022, on average, how many minutes were the sites in use?

Section 2: Personnel Costs

A. Staffing (0%)

In answering questions related to cost, if your operational and ARMER budgets are combined please do your best in breaking out the cost and placing it in the appropriate survey and question. (i.e. 9-1-1 and ARMER personnel costs)

9. How many radio technicians are you budgeted to employ?

10. How many radio technicians do you currently employ?

11. How much does it cost to recruit and onboard a new radio technician?

12. Do you offer per diem / part-time positions?

13. Does your organization have any minimum education requirements prior to hiring (i.e. HS Diploma/GED, Bachelors, technical school, etc.)?

14. Do employees with a technical/college degree receive a higher compensation for their educational level?

15. Place the number of radio technicians you have in each of the years of experience ranges below:

- a. < 1 year
- b. 2-5 years
- c. 6-10 years
- d. 11-15 years
- e. 16-20 years
- f. 21-25 years
- g. > than 25 years

16. Personnel salary (not overtime) budget for the current fiscal year:

17. Personnel salary (not overtime) costs for the last fiscal year:

18. Is your current fiscal year trending to last year's costs? If not, please explain.

19. Overtime budget for the current fiscal year:

20. Overtime costs for the last fiscal year:

21. Is your current fiscal year trending to last year's costs? If not, please explain.

22. Personnel benefits budget for the current fiscal year:

23. Personnel benefits cost for the last fiscal year:

24. Is your current fiscal year trending to last year's costs? If not, please explain.

25. What is the average cost of recruiting and hiring one new radio technician (not including training costs)?

Section 3: Training

A. Training Costs (0%)

In answering questions related to cost, if your operational and ARMER budgets are combined please do your best in breaking out the cost and placing it in the appropriate survey and question. (i.e. 9-1-1 and ARMER personnel costs)

26. What is the average cost to initially train one radio technician?

27. How many radio technicians complete continuing education annually?

28. What is the average annual cost for continuing education of one radio technician?

29. How many supervisors/managers complete continuing education annually?

30. What is the average annual cost for continuing education of one supervisory staff member?

31. What is your annual cost for continuing education?

32. Please provide the annual cost you incur for each of the below ancillary training costs:

- a. Computer equipment (i.e. simulation lab, training consoles, etc.)
- b. Radio equipment
- c. Training-related software (i.e. Motorola Radio Mgmts, Aviat, Genesis, etc.)
- d. Textbooks
- e. Printing/copying
- f. Certifications
- g. Other (please specify using the add additional details link above)

Section 4: Facilities Costs

A. Facilities Rent & Utilities Costs (0%)

33. Tower site annual rent:

- a. Self-owned
- b. Shared sites (MESB leased)

34. Tower site annual utilities:

- a. Power (fuel, electric, natural gas)
- b. Water
- c. Sewage
- d. Internet
- e. Phone (9-1-1 Circuits, admin, etc.)

35. Tower site maintenance (snow removal, landscape, etc.):

36. Tower site network connections:

- a. Ethernet
- b. T1
- c. Microwave
- d. Copper lines
- e. Data/satellite
- f. Other (please specify)

37. Facilities annual rent (office space):

38. Facilities annual utilities:

- a. Power (fuel, electric, natural gas)
- b. Water
- c. Sewage
- d. Internet
- e. Phone (9-1-1 Circuits, admin, etc.)

39. Other costs (please specify):

B. Facilities Maintenance & IT Connection Costs (0%)

40. Facilities maintenance (i.e. snow removal, landscape, etc.):

41. Facilities network connections:

- a. Ethernet
- b. T1

- c. Microwave
- d. Copper lines
- e. Data/satellite
- f. Other (please specify)

Section 5: Office Equipment & Supplies

A. Office Equipment & Supplies (0%)

42. Admin computers:

43. Monitors:

44. Computer ancillary equipment (i.e. keyboards, mice, etc.):

45. Desks:

46. Radio workstations (for maintenance):

47. Copiers:

48. Fax machines:

49. Phones:

- a. Landline
- b. Cell phones
- c. Pagers
- 50. Basic office supplies:

Section 6: Alert Systems

A. Alert System Costs (0%)

51. Motorola monitoring system:

52. Other equipment monitoring:

53. Network monitoring:

Section 7: ARMER Radio Costs

A. Programming & Maintenance (0%)

54. Programming costs:

55. Do you program your own equipment?

56. Maintenance costs:

57. Do you maintain the tower site equipment using internal personnel?

58. Battery replacement costs:

59. Programing equipment costs (i.e. key loaders, etc.):

60. Charger costs:

61. Motorola maintenance agreement cost:

62. Attached Documents (Note: This is not an actual question, and no files need to be uploaded to submit)

Add Additional Details | Upload Files

APPENDIX 3

PSAP Operational Cost Survey

The objective of this survey is to determine the present operational expenses of PSAPs within the 10-county area. This encompasses costs tied to staffing, training, facilities, equipment, software, services, and other essential expenditures for sustaining the 9-1-1 operation. Additionally, the survey aims to pinpoint shared expenses across various agencies, applications, equipment, and services, taking into account secondary PSAPs as well.

Section 1: General Information

A. Demographics (0%)

- When completing this survey please answer as if you had full staffing.

1. PSAP name:

2. PSAP location:

3. Are you a primary or secondary PSAP?

B. Metrics (0%)

4. In 2022, what was your PSAP's average total daily call volume by category below, including ALL inbound calls? (List the number next to each type)

- a. 9-1-1
- b. Non-emergency
- c. Admin
- d. Ring Down
- e. Text-to-9-1-1
- f. Other (please specify above)

5. In 2022, what was your average total daily call volume by category below, including ALL outbound calls? (List the number next to each type)

- a. Abandoned
- b. Callback
- c. Admin

- d. Other (please specify above)

6. In 2022, how many CAD incidents per year?

7. In 2022, what was the average time in minutes to dispatch emergency services?

Section 2: Personnel Costs

A. Staffing (0%)

- In answering questions related to cost, if your operational and ARMER budgets are combined please do your best in breaking out the cost and placing it in the appropriate survey and question. (i.e. 9-1-1 and ARMER personnel costs)

8. How many Telecommunicators are you budgeted to employ?

9. How many Telecommunicators do you currently employ?

10. On average, how many Telecommunicators do you hire annually?

11. Do you offer per diem / part-time positions?

12. How many administrative staff do you employ (i.e. Supervisors, Managers, Assistant Directors, Directors, Administrative Support)?

13. How many technical positions do you employ (i.e. IT, CAD, GIS, Technical Support, etc.)?

14. Do you offer job sharing at your PSAP?

15. Does your PSAP have any minimum education requirements prior to hiring (i.e. HS Diploma/GED, Bachelors, etc.)? If yes, please specify.

16. Do employees with a technical/college degree receive a higher compensation for their educational level?

17. Place the number of Telecommunicators you have in each of the years of experience ranges below:

- a. < 1 year
- b. 1-3 years
- c. 4-6 years
- d. 7-10 years
- e. 11-15 years

- f. 16-20 years
- g. 21-25 years
- h. > than 25 years

18. Do you currently have a mandatory overtime policy in place? If yes, please provide the details.

B. Staffing Costs (0%)

19. Personnel salary (not overtime) budget for the current fiscal year:

20. Personnel salary (not overtime) costs for the last fiscal year:

21. Is your current fiscal year trending to last year's costs? If not, please explain.

22. Overtime budget for the current fiscal year:

23. Overtime costs for the last fiscal year:

24. Is your current fiscal year trending to last year's costs? If not, please explain.

25. Shift differential budget for the current fiscal year:

26. Shift differential costs for the last fiscal year:

27. Is your current fiscal year trending to last year's costs? If not, please explain.

28. Personnel benefits budget for the current fiscal year:

29. Personnel benefits cost for the last fiscal year:

30. Is your current fiscal year trending to last year's costs? If not, please explain.

31. What is the average cost of recruiting and hiring one new Telecommunicator (not including training costs)?

Section 3: Training

A. Training Costs (0%)

32. In 2022, how many new Telecommunicators did your PSAP train?

33. What is the average cost to initially train one Telecommunicator?

34. In 2022, how many Telecommunicators completed continuing education?

35. In 2022, what was the average annual cost for the continuing education of one Telecommunicator?

36. How many supervisors/managers complete continuing education annually?

37. In 2022, what was the average annual cost for the continuing education of one supervisory staff member?

38. Do you have full time staff dedicated to your training department/division? If yes, please specify how many.

39. What is your annual cost for instructors to train new and continuing education?

40. Please provide the annual cost you incur for each of the below ancillary training costs:

- a. Computer equipment (i.e. simulation lab, training consoles, etc.)
- b. Radio equipment
- c. Training-related software (i.e. CAD, CHE, etc.)
- d. Textbooks
- e. Printing/copying
- f. Certifications (i.e. EMD, T-CPR, CTO, etc.)

Section 4: Facilities Costs

A. Rent & Utilities (0%)

41. Annual rent:

42. Annual utilities:

- a. Power (fuel, electric, natural gas)
- b. Water
- c. Sewage
- d. Internet
- e. Phone (9-1-1 Circuits, admin, etc.)
- 43. Other costs (please specify):

B. Maintenance & IT Connections (0%)

44. Maintenance (snow removal, landscape, etc.):

45. Do you have a backup PSAP facility?

46. In 2022, what was your total annual cost for your backup PSAP (i.e. facilities, maintenance, operations)? (please enter 0 if n/a)

47. Network connections:

- a. Ethernet
- b. T1
- c. Microwave
- d. Copper lines
- e. Data/satellite
- f. Other (please specify)

Section 5: Office Equipment & Supplies

A. Office Equipment & Supplies (0%)

48. Admin computers:

49. Monitors:

50. Computer ancillary equipment (i.e. keyboards, mice, etc.):

51. Desks:

52. Dispatch consoles:

- a. Last upgrade (Month/Year)
- b. Next anticipated upgrade (Month/Year)

53. Copiers:

54. Fax machines:

55. Phones:

- a. Landline
- b. Cell phones
- c. Pagers
- 56. Basic office supplies:

Section 6: Call Handling Equipment (CHE)

A. Equipment (0%)

57. When did you last replace your CHE?

58. CHE replacement cost:

59. Has the CHE been upgraded since your last replacement?

60. CHE upgrade cost:

61. When is your next anticipated upgrade/replacement?

B. CHE Maintenance Agreements (0%)

62. What is the annual maintenance costs for the CHE system?

63. What is the other ongoing costs for CHE support?

Section 7: Computer-Aided Dispatch (CAD)

A. Equipment (0%)

64. When did you last replace your CAD?

65. CAD replacement cost:

66. Has the CAD been upgraded since your last replacement?

67. CAD upgrade cost:

68. Next anticipated upgrade/replacement:

B. Maintenance & Support (0%)

69. What is the annual maintenance costs for the CAD system?

70. What is the other ongoing costs for CAD support?

C. Mobile Data Computers (MDCs) (0%)

71. When did you last replace your MDCs?

72. MDCs replacement cost:

73. Has the MDCs been upgraded since your last replacement?

74. MDCs upgrade cost:

75. When is your next anticipated upgrade/replacement?

76. What is the annual maintenance costs for the MDCs?

77. What is the annual cost of cell service for MDCs?

78. What are the other ongoing costs for MDC support? (please specify)

D. Interoperability & Other Costs (0%)

79. CAD-to-CAD:

80. Maintenance:

81. Other public safety application costs (please specify)

82. Other (please specify)

Section 8: GIS Data Provisioning & Maintenance

A. Public Safety GIS (0%)

83. Does the PSAP have staff to support GIS provisioning and maintenance for PSAP/public safety use?

84. How many staff support GIS for PSAP/public safety use?

85. Annual personnel costs to support PSAP/public safety GIS:

86. GIS contractor costs to support PSAP/public safety GIS:

87. GIS computer software/hardware costs (e.g. ESRI, third-party tools, etc.):

88. GIS contractor costs:

89. Other costs: (please specify)

B. Core GIS Data Sets (0%)

90. What department supports the provisioning and maintenance of road centerlines and address points for the county/PSAP serving area?

91. Total number of road centerline segments in the county/PSAP serving area:

92. Total number of address points in the county/PSAP serving area:

93. How many staff support the provisioning and maintenance of these core GIS datasets?

94. Annual personnel costs to support these core GIS datasets:

95. GIS contractor costs to support these core GIS datasets:

96. GIS infrastructure (hardware/software/maintenance) costs to support these core GIS datasets:

97. Other costs: (please specify)

Section 9: Alert Systems

A. Alert System Costs (0%)

98. Emergency notification system(s) cost:

99. IPAWS Module cost if separate: (please enter 0 if n/a)

Section 10: State 9-1-1 Network

A. State 9-1-1 Network (0%)

100. Do you currently have geo-diverse connections to the state 9-1-1 network?

101. Do you plan to expand the number of connections you have to the state 9-1-1 network (i.e. backup PSAP, geo-diverse connections, etc.)?

102. Do you use the state provided RapidDeploy mapping solution?

103. What additional costs are incurred annually to support the use of the RapidDeploy mapping solution? (please enter 0 if n/a)

104. Attached Documents (Note: This is not an actual question, and no files need to be uploaded to submit)

Add Additional Details | Upload File