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Executive Summary

In response to the rapidly changing 911 environment sweeping the country and technical advancements, Downriver Mutual Aid (DMA) officials engaged Mission Critical Partners, LLC (MCP) to evaluate if consolidating 12 public safety answering points (PSAPs) within DMA in some form of regionalization was feasible and could improve emergency response outcomes in the region. To accomplish this task, MCP completed a comprehensive assessment of the current state of public safety communications services of the 12 PSAPs, including the organizational structure, operational configuration, staffing, training, quality assurance (QA), leadership, performance management, technology, and facilities.

MCP is pleased to provide this feasibility study that presents the findings of our analysis and opportunities to enhance public safety communications capabilities for DMA, its constituents, and field responders. This report, while a comprehensive overview of the region's emergency communications services, is based on the current state of operations when this phase of the project began in January 2022.

A diverse group of stakeholders participated in the project—representatives from DMA and Downriver Community Conference (DCC), human resources (HR) personnel, agency leadership, PSAP personnel, and field responders. Each stakeholder served either the core project team or was interviewed individually or as part of a focus group. Additional input was sought from a variety of internal and external personnel.

At the onset of this project, stakeholders highlighted their current challenges and desires:

- Addressing the staffing shortage by not relying on part-time employees that are shared amongst the various agencies or having sworn personnel working as telecommunicators in the PSAPs.
- Improving the efficiencies of both processes and technology within the PSAP, which will in turn provide resources resulting in reliable, defined, and long-term functionality.
- Reducing the ancillary duties of the telecommunicators while still managing those assignments at the department.
- Reducing liability by identifying training gaps, implementing national standards, and maintaining required statewide certifications and standards.
- Identifying measurable outcomes that improve the service level and provide the best personal service and response to the communities.
- Allowing telecommunicators to focus on job-related tasks, resulting in stress reduction and lessening the burdens of ancillary duties.
- Being ahead of any state consolidation legislation.
- Allowing each DMA member agency to have a voice and be heard.
- Planning for and being prepared to respond to the State of Michigan (State) audit so as not to lose or need to reimburse any funding.
- Employing a consolidated center that keeps the experience and knowledge of the current emergency telecommunicators (ETCs) intact.
- Being fiscally smart, whether there be savings due to cost-sharing or, if costs increase, show improvement of service as a return investment.

MCP kept these at the forefront during our assessment and subsequent recommendations.

Based on extensive analysis using national standards, best practices, Michigan legislation, and our industry knowledge and experience, MCP determined that DMA constituents and field responders would benefit from the regionalization (consolidation) of the 12 PSAPs, also known as emergency communications centers (ECCs). To be clear, no one single aspect drives the consolidation determination—the holistic collective and the interrelationships among the PSAPs introduce risks into the public safety communications system. This report provides an answer to the "if" and "why" consolidation in the region is feasible. More importantly, it lays the groundwork for an implementation plan to be developed in the future and factors that must be addressed through collaborative planning between the agencies involved.

Eliminating occurrences where one telecommunicator is on duty will mitigate risk and improve professionalism throughout the DMA region.

Opportunities exist across the board in PSAP operations, policies and procedures, personnel and workforce, QA and performance management, facilities, leadership and planning, technology, training, and governance. Eliminating occurrences where one telecommunicator is on duty will mitigate risk and improve professionalism throughout the DMA region. Fortunately, the motivation exists to pursue opportunities to position DMA to attain improved service delivery by implementing the recommendations within this report—which includes a consolidated operation into a renovated space within the Brownstown Police Department (BPD)—and to stay ahead of any potential unfunded mandate from the State. The recommendations overall address the key findings and lend themselves well to support the current activities and future regionalization planning efforts in the DMA.

> It is unreasonable to expect that surcharge money will be able to stay the pace with increasing technology and workforce costs. There is an assumption that if consolidation is mandated by the state, there will be less funding from the state to support the effort.

Under normal circumstances, status quo is identified as an option. However, due to the staffing situation in the region (83% of the PSAPs in DMA are single-seat operations), status quo is not a viable consideration. Likewise, one also would expect to see colocation as an option. However, simply colocating the PSAPs does not provide relief regarding the recruiting, staffing, and call transfers, and flat organizational structure challenges that, if improved, would enhance operations and reduce liability exposure.

Therefore, based on our assessment of the current environment and information presented in this report, MCP recommends physical regionalization under a single governance structure for all PSAPs operating under DMA. Given the need for a redundant backup location, the Downriver Central Dispatch (DCD) equipment and workstations should remain intact for a hot backup and training facility, or a suitable alternate location should be identified.

The following reasons provide further support for a physical consolidation of the PSAPs operating in the DMA region:

- Reduces 911 call transfers[1]
- Eliminates occurrences where one employee is on duty at a time
- Eliminates occurrences where unqualified personnel are working in the PSAP (e.g., sworn personnel without adequate training)
- Eliminates call workflows that inherently include two or more 911 call transfers[2]
- Provides zero-minute response to most fire and emergency medical calls for service[3]
- Improves staffing to provide enhanced coverage 24 hours a day, seven days a week (24 x 7)
- Reduces staffing shortages
- Expands the workspace in the PSAP
- Reduces operational complexity of the combined call-taker/dispatcher position, which can improve training completion statistics
- Minimizes budget competition between field and dispatch personnel
- Eliminates duplicative support services
- Decreases the number of points of infiltration for cybersecurity risks
- Eliminates cost duplication to operate the 12 PSAPs

- Eliminates workforce competition between the PSAPs
- Leverages investments in common systems (911 platform) and interfaces
- Provides a single complaint resolution workflow
- Provides a shared QA/QI (quality improvement) program
- Assures more consistent and effective service delivery
- Provides greater opportunities for interagency response, backup, situational awareness, and data sharing
- Leads to operational and capital cost savings
- Provides for improved continuity of operations (COOP) and disaster recovery (DR) plans
- Improves radio communications and interoperability among responders
- Standardizes processes to promote community education trust and support
- Adheres to training and QA requirements to improve service and reduce mistakes
- Adheres to Michigan training requirements for funding opportunities

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[1] Transfers cannot be eliminated unless all agencies join the consolidation effort.

[2] MCP has found that eliminating double transfers is a best practice. This finding is supported by states such as Florida that have such requirements incorporated into their state 911 plans. Florida E-911 Plan, Section 3.2.3(B) says the following about double transfers: "With a transferred call, the caller must never be procedurally required to talk with more than two people: the primary PSAP 911 call taker and the call taker at the remote agency. There shall be no inherent double transfers."

[3] "Pre-Arrival Instructions (or PAI's) [sic] provide potentially life-saving, scripted instructions for callers trapped in a sinking vehicle or structure fire, water rescue incidents, a person who is on fire, a caller who is in danger but not trapped, or a situation where there is a HAZMAT danger. Collectively, these protocols and instructions are referred to as Dispatch Life Support Instructions. Dispatch Life Support Instructions make it possible for properly trained call takers to provide a Zero Minute Response™." Priority Dispatch, 2020. https://prioritydispatch.net/emd-cardset/ Zero-minute response cannot be fully realized unless dispatch agencies in the county join the effort.

"Regionalization can be defined as two or more communities (or organizations, or agencies) that join together in a formal, mutually-beneficial working relationship to optimize services provided to the customers of their communities (or organizations, or agencies)."[4] This can be achieved inorganically, which would result from outside forces, such as an unfunded mandate (e.g., states of Illinois and Ohio)—which stakeholders reported has been attempted at least two times over the years. It can also occur organically, which

Moving forward proactively and thoughtfully helps the entire region establish its own future rather than being forced into mandated consolidation that could result in even greater initial expense should the State decide to issue such a mandate.

is more natural and evolves out of a voluntary, cooperative effort to improve the emergency response, such as in Nebraska and Palm Beach County, Florida, where no mandates exist. It is the consensus of some staff and stakeholders that there may be value in consolidating ahead of an inevitable State mandate. It is unreasonable to expect that surcharge money will be able to keep pace with increasing technology and workforce costs. There is also an assumption that if consolidation is mandated by the State, there will be less funding from the State to support the effort.

The diagram below outlines a vision for a tiered approach that supports organic regionalization of the PSAPs that includes three complementary elements of regionalization—physical, technology and shared systems, and policies and operating procedures.

Tier 1
Voluntary participation in *physical consolidation* of PSAPs into renovated BPD facility

Tier 2 -
Participation in regionwide enhancements in *technology and shared systems*

Tier 3 -
Participation in regionwide consolidation of *policies and operating procedures*

Figure 1: Regionalization Tiered Approach

Because there is much to consider, until such time that DMA members were to actually vote on whether or not to participate in the first tier—physical consolidation—and the impact on those that elect tier 2 or tier 3, exactly how many and which agencies would elect to participate in the first tier (which has a direct impact on the staffing and costs), MCP provides a best case scenario if all agencies elected to participate in physical consolidation, which at the end state means that tier 2 and tier 3 would also be accomplished. Initial cost modeling indicates that if all

If all agencies were to consolidate, an operational cost reduction of *approximately* $2.3 million in annual operating expenses may be realized.

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[4] NASNA - 911 Regionalization - Tools and Information (nasna911.org)

agencies were to consolidate, an operational cost reduction of approximately $2.3 million in annual operating expenses for the region may be realized. A cost-sharing model that evenly distributes the regional cost savings could be developed during implementation planning.

MCP's findings also support that the success of DMA's PSAP configuration, in the current state or consolidated, is dependent on increasing revenue to support operations and expanding or renovating the primary and backup facilities that are currently at capacity and outdated. The current funding provided by the Michigan 911 surcharge does not provide enough revenue to support the current operating models.

Without consolidation, PSAPs are bound to the current state and constrained in their efforts to provide a higher, more efficient level of service.

The goal is to become fiscally more efficient as the region becomes more operationally efficient.

1 Introduction

Downriver Mutual Aid (DMA) contracted Mission Critical Partners (MCP) to perform a comprehensive assessment of 12 PSAPs within the DMA, including their operations, administration, technology, facilities, and operating expenses. The goal of the assessment was to determine if regionalization is feasible and could improve emergency response outcomes.

Located in Wayne County, Michigan, DMA members cover approximately 125 square miles. Within DMA, and the purview of this study, are 12 primary PSAPs operated by the townships of Brownstown and Grosse Ile, the cities of Ecorse, Flat Rock, Gibraltar, River Rouge, Riverview, Rockwood, Taylor, Trenton, Woodhaven, and Downriver Central Dispatch (DCD). Collectively, these 12 PSAPs serve the DMA region's approximately 300,000 residents, 15 law enforcement agencies, 15 fire/rescue and emergency medical services (EMS) transport agencies, numerous on-call fire departments, field responders, and countless visitors.

A primary PSAP is the initial point of entry for all 911 calls that originate within its service area. Typically calls requiring law enforcement, fire, or EMS response are received and then directly dispatched by a PSAP without the need for call transfers. The demographics for the respective PSAPs are shown in the table below.

Table 1: PSAP Demographics

PSAP Location	Primary Positions (Workstations)	Population	Square Miles	Annual 911 Volume 2021	Percentage of 911 Call Volume
Brownstown	2	33,194	30.64	11,499	7%
Ecorse	1	9,305	2.8	8,467	5%
Flat Rock	1	10,541	6.53	4,412	3%
Gibraltar	1	4,997	3.7	1,735	1%
Grosse Ile	1	10,788	9.2	1,844	1%
River Rouge	1	7,224	2.7	5,600	4%
Riverview	1	12,490	4.4	5,313	3%
Rockwood	1	3,186	2.5	1,371	1%
Taylor	3	63,409	23.6	44,189	28%
Trenton	2	18,544	7.3	6,449	4%
Woodhaven	1	12,941	6.4	5,935	4%

PSAP Location	Primary Positions (Workstations)	Population	Square Miles	Annual 911 Volume 2021	Percentage of 911 Call Volume
DCD, which includes: – Wyandotte – Lincoln Park – Allen Park – Southgate	4	25,058 40,245 28,638 30,014	5.3 5.9 7.0 6.8	60,485	39%
Total	**19**	**310,574**	**124.77**	**157,299**	**100%**

Based on the size categories described in the National 911 Program's *Next Generation 911 Cost Estimate: A Report to Congress* published in 2018, each PSAP included in this study is considered small. This category assumes a minimum of two and a maximum of six workstation positions. The 12 PSAPs have one to four primary positions (workstations), with minimum staffing of one to three telecommunicators.

It is not unusual for small PSAPs to be assigned ancillary duties that are not related to 911 services. These typically include answering 10-digit administrative lines and handling after-hours requests from individuals seeking other administrative or routine municipal services. Eleven of the 12 PSAPs require their telecommunicators to work either a front window, which includes greeting visitors, processing bonds, and other administrative functions. Two of the PSAPs are staffed by sworn law enforcement personnel (command and sergeant level) with primary jailer responsibilities.

2 Methodology

The project core team, noted in the table below, assisted MCP in its assessment by providing data and facilitating interviews. Other DMA elected and appointed officials and staff members supported the project.

Table 2: Project Stakeholders

Project Core Team Members and Other Stakeholders	

• Downriver Community Conference
  – Bob Heck, DMA System Administrator
  – Kurt Kobiljak, DMA Corporate Council
  – Bob Matthews, GIS Coordinator and Law Enforcement Information System Administrator
  – Loree Smith, DCC Procurement Coordinator
	• Brownstown Police Department
	  – Jeff Watson, Chief of Police
	• Downriver Central Dispatch
	  – Archie Hamilton, Deputy Chief of Police
	  – Brian Zalewski, Chief of Police

Data Collection

A success factor of this project is the input of respective PSAP staff and DMA staff and the data provided by them. Studies such as these require a significant amount of historical and current data that allows MCP to assess each factor.

Following a virtual soft kickoff, MCP was onsite for three and a half days conducting an in-person project kickoff meeting and PSAP tours and interviewing staff and stakeholders to obtain more information and the data to assess the current environment. While onsite, MCP engaged with field operations personnel, PSAP management and telecommunicators, support staff (information technology [IT] and radio), local leadership, and elected officials who wished to share ideas, thoughts, and/or concerns. Staff and stakeholders provided information, statistics, and documents for MCP's review.

A project team comprised of key stakeholders met bi-weekly to gauge further needs, discuss updates, and assure conformity to the scope and schedule.

This regionalization feasibility study spanned approximately six months.

Findings and Analysis

The findings and analysis section of this report contains information garnered through data collection and research, which details the current state of the PSAPs, as well as the analytical portions of the study that measure findings to national standards and best practices, as well as MCP's industry experience and knowledge.

- Standard – something established by authority, custom, or general consent as a model or example[5]
- Best Practice – a procedure that has been shown by research and experience to produce optimal results and that is established or proposed as a standard suitable for widespread adoption[6]
- Industry Experience – primarily involves a minimum of ten years of combined education, work experience, and specialization in a respective industry or market segment

The data and information provided ranged from hard numbers (quantitative data) to opinions and anecdotal input (qualitative data). For data that was more quantitative, MCP relied on established public safety and private industry metrics to assess and evaluate factors related to PSAP operations. Where data was qualitative or metrics have not previously been established, MCP drew on its collective industry experience and awareness of best practices to create those metrics and assess the status of the PSAPs.

Throughout this report, MCP endeavors to make clear where analysis and findings are based on measurable, quantitative data and where MCP necessarily draws its findings from inherently more subjective evaluations. MCP's years of experience have demonstrated that subjective assessments— backed by thoughtful and unbiased comparisons with public safety and private industry best practices, along with industry exposure—are just as meaningful and important as hard, quantitative evaluations. Subjective input is properly utilized when the assessors critically review the input and do not settle for

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[5] "Standard," Merriam-Webster, 2020. https://www.merriam-webster.com/dictionary/standard
[6] "Best Practice," Merriam-Webster, 2020. https://www.merriam-webster.com/dictionary/best%20practice

regurgitation of unsubstantiated opinions. Both play a role in identifying where the PSAPs stand today and where they should place their priorities in crafting a plan to address critical areas at risk—whether that be in the form of shared services opportunities or through consolidation.

Findings Summary

These text boxes convey conclusions from the facts or information presented and reviewed. The content highlights main points or key messages learned or understood from something MCP reviewed, experienced, or observed.

Report and Presentation

The draft report was developed and submitted to the project team; shortly thereafter, MCP met with the project team to answer questions and discuss items that required further explanation or added content.

Within a specified period, the final report was presented to all key stakeholders and staff with a focus on inclusion, feedback, and proposed next steps.

3   Current State Findings and Analysis

The project core team assisted MCP in its assessment by providing data and facilitating interviews.

During the study, MCP focused on seven factors, shown to the right, with special attention towards determining opportunities for shared services or consolidation of operations that would mutually benefit the PSAPs within the DMA region and their stakeholders.

- Leadership and Planning
- Revenue and Expenses
- PSAP Operations, Policies, and Procedures
- Training, Quality Assurance, and Performance Management
- Personnel and Workforce Management
- Technology
- Facilities
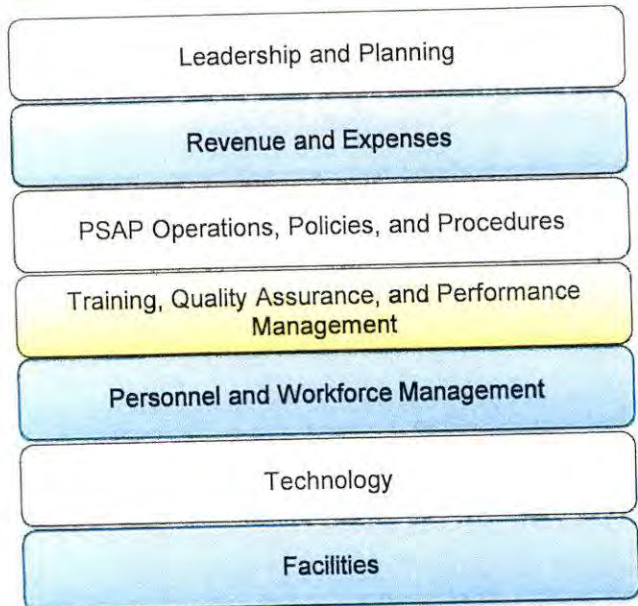
Figure 2: Assessment Factors

3.1 Leadership and Planning

3.1.1 Summary of Findings

> **Findings Summary**
>
> - All the PSAPs within DMA, with the exception of DCD, are a division under a law enforcement agency, which means they are governed at the municipal level.
> - DCD is governed by an interlocal agreement between Allen Park, Lincoln Park, Southgate, and Wyandotte. The governing board is comprised of a public safety representative, designated by the chief administrative officer, of each governmental unit.
> - DCD staff are employees of Wyandotte, and direct oversight of the PSAP falls under the police department command staff, which is governed at the municipal level.
> - Many competing public safety and other municipal and county initiatives impact leadership planning.
> - The PSAPs are supported by DMA, which is a program under the DCC and provides oversight of the 911 technology program.
> - All the PSAPs have flat organizational structures with little or no opportunity for career advancement.
> - Outside of DMA, the PSAPs in the region lack formal planning (i.e., strategic, continuity of operations [COOP], disaster recovery [DR], change management, and cybersecurity).

An organization's leadership and planning have a direct and crucial effect on the success or failure of a public safety entity. Leadership and planning go hand-in-hand—without proper leadership, the best plans often go awry, and without proper planning, the best leaders often falter. Sir Winston Churchill is credited with the saying, "He who fails to plan is planning to fail." This is as true in each branch of public safety—including public safety communications—as it is in any business.

Management, administrative oversight, and governance of public safety communications operations and systems are separate issues. Management involves day-to-day PSAP operations, administrative oversight, and policy that establishes and is accountable for overall municipal system performance, while governance involves an even higher level of supervision, generally in a multi-jurisdiction environment.

> Leadership:
> - Establish a clear vision
> - Share the vision
> - Provide information, knowledge, and methods
> - Coordinate and balance conflict

In a 911 system serving multiple jurisdictions, management, in whatever form it takes, must be able to allocate funds, prioritize operations, and generally carry out the PSAP's mission and vision. To assure this is possible, some form of governance is necessary.

These factors become important as the nation moves away from analog technology and towards a Next Generation 911 (NG9-1-1) environment where strategies for virtual regionalization focus on sharing data and services.

Active governance is an ideal that is often difficult to achieve. The governmental process characteristically involves well-intentioned people who bring their ideas, experiences, preferences, and other strengths (and sometimes shortcomings) to the policy-making table. Active governance is achieved through an ongoing discourse that attempts to capture all considerations involved in assuring that stakeholder interests are addressed and reflected in policy.

Effective governance typically results in the following outcomes:

- Standardization of operations and equipment
- Improved quality and reliability of the 911 system
- Cost savings through the sharing of resources
- Standardization of services and establishing customer expectations
- Funding leverage and accountability
- Purchasing power, plus improved and/or coordinated purchasing decisions
- Faster adoption of technology
- A greater level of overall cooperation and coordination
- Reduced processing times for call transfers, which may reduce overall response times

Recognizing the efficiencies that can be gained through regionalization, there are ongoing discussions about the potential to consolidate the 12 PSAPs in some fashion. Stakeholders that participated in the meetings and interviews indicated a desire to improve emergency response for the constituents and field responders within DMA; however, there continues to be reluctance by staff and stakeholders on how regionalization would be achieved and what the governance model and organizational structure would be. Despite the recognition that services could be improved, no clear path has been developed for the unification of PSAP resources and the necessary governance to accomplish regionalization.

3.1.2   Governance and Organizational Structure

DCC

The DCC is the fiduciary of the DMA 911 district. The DCC is a private, nonprofit organization serving 20 communities in the Downriver area and has been determined to be exempt from federal income tax under section 501(c)(3) of the Internal Revenue Code. In addition to fiduciary support, the DCC has HR personnel, legal counsel, payroll, and other support services available for members.

DMA

Formed through an interlocal agreement, DMA is a public safety consortium and one of four emergency services districts in Wayne County, including the neighboring partners of Western Wayne, East Detroit, and the City of Detroit. Each of the 12 members of DMA is a separate legal and administrative entity apart from their membership in DMA. Under DCC, DMA provides oversight of the 911 system in the DMA district and the 911 funds from the State. Each DMA member is responsible for providing 911 service to its respective community through the operation and management of a PSAP. All PSAP call-handling

equipment (CHE) and radio consoles are managed and funded through DMA, while computer-aided dispatch (CAD) systems are managed and funded through the individual agencies.

The DMA Board is comprised of elected officials from the communities which DMA serves. DMA has direct control over its offerings of PSAP training, geographic information system (GIS) services, and delivery of emergency telephone systems and related technology to its member agencies. It can encourage but cannot require member PSAPs to participate outside of that purview with commitments such as joining a unified radio system or sharing a CAD system. It can encourage and support PSAPs by providing operational best practices and guidelines but cannot require member agencies to change how they operate.

With the exception of DCD, the PSAPs within DMA fall within the organizational structure of law enforcement, which means they are governed at the municipal or county level and directed by a police chief. DCD is the only DMA member that is governed through an interlocal agreement. The governing board is comprised of a public safety representative, designated by the chief administrative officer, of each governmental unit—Allen Park, Lincoln Park, Southgate, and Wyandotte. DCD staff are employees of Wyandotte and direct oversight of the PSAP falls under the police department command staff, which is governed at the municipal level.

PSAPs that are divisions or units within law enforcement are generally supervised by a sworn member of the command staff. Even with supervisory support provided by civilian dispatch supervisors, this structure can be challenging because field resource needs usually take priority over PSAP needs. PSAP organizational structures in smaller agencies, or within another department, are generally flat, with little or no opportunity for career advancement. A lack of growth opportunities can result in high turnover and loss of experienced staff as individuals desiring advancement and higher levels of financial compensation seek employment elsewhere.

Through governance and the organizational structures, MCP found a broad range of leadership influence within the DMA region. Leadership influence in a PSAP is impacted by many competing public safety priorities. Several active initiatives in the region demonstrate where there is clear leadership influence: technological advancements, physical consolidation initiatives, and COOP planning. The outcomes of these initiatives and others are the result of effective relationships between management, administration, and the governing body.

3.1.3   Leadership Planning

An essential prerequisite to leadership and planning is a shift from passive to active governance. Active governance is an ideal that is often difficult to achieve. The governmental process characteristically involves people who bring their ideas, experiences, preferences, and other strengths to the policy-making table. Active governance is achieved through an ongoing discourse that attempts to capture all considerations involved in assuring that stakeholder interests are reasonably addressed and reflected in policy.

Formal planning for a PSAP includes but is not limited to strategic (including short- and long-term financial planning), change management, and continuity of operations.
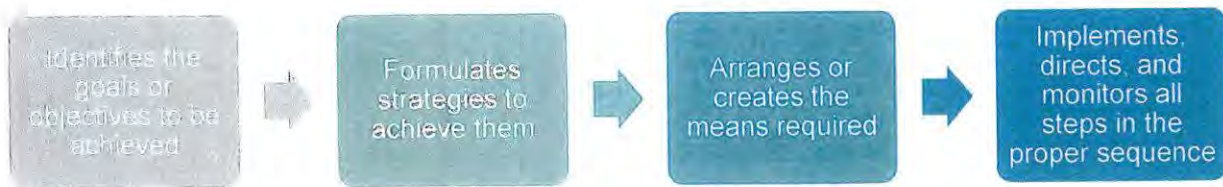
Figure 3: Planning

Strategic Planning

A strategic plan is essential to an organization's ability to achieve, proactively and incrementally, its long-term goals. None of the PSAPs in the DMA region have a strategic plan that is related to PSAP operations. The public safety communications ecosystem is a technologically sophisticated environment that is essential to effective emergency response operations. The more complex the ecosystem becomes and the faster it expands, the harder it is to maintain clarity of direction and alignment. There are multiple components of PSAP operations that should be included in short- and long-range planning to sustain current operations and plan for and meet future budgetary needs (e.g., facility, technology, equipment, etc.).

Change Management Planning

The change management process is a series of tasks outlined for a seamless transition from a current state to future state without obstructing the workflow or suffering any damages. Of the PSAPs interviewed, three reported they have formal change management plans for technology and security upgrades but not for operational and policy changes.

A change management plan is an essential tool that helps determine if initiatives will provide value to the organization. While providing clarity, it also maintains alignment of projects and initiatives with the organization's strategic goals and objectives and helps mitigate mission creep and change fatigue.

COOP and DR Planning

Continuity is defined as *the ability to provide uninterrupted services and support, while maintaining organizational viability before, during, and after an event that disrupts normal operations.*[7] A COOP plan is a tool that is intended to aid an organization in preparing for, responding to, and recovering from a disruptive event.

COOP and DR planning identify how critical operations will continue under a broad range of circumstances. Half of the 12 PSAPs interviewed reported having some form of a COOP/DR plan, almost all of which applied more to the police department than the PSAP. The plans are not regularly exercised, and operational staff interviewed had little working knowledge of the plan(s).

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[7] *Federal Continuity Directive 1 (FCD-1).* U.S. Dept. of Homeland Security (DHS), January 2017

A COOP plan supports the internal operations of respective departments during an emergency or disaster. A COOP plan typically includes the following elements:

- Basic Plan – provides explanatory information regarding the planning process and use of the plan
  - Introduction
  - Situation and Assumptions
  - Concept of Operations
  - Incident Management
  - Recovery and Reconstitution
  - Training and Exercises
  - Plan Administration
- Plan Appendices – supplementary information including additional illustrative content
  - Mission-essential Functions (MEFs)
  - Staff Succession and Delegations of Authority
  - Alternate Worksite(s) and Devolution/Reconstitution Procedures
  - IT Systems
  - Crisis Communications
  - Pandemic Disease Preparedness and Response Procedures
  - Statutes, Ordinances, Standards, and References
  - COOP Plan Terms and Glossary

Because no two jurisdictions are the same—in terms of resources, capabilities, socioeconomics, geography, topology, and other differentiating factors—a cookie-cutter approach to developing a COOP plan is not advised—rather, it should be customized based on an organization's specific needs and circumstances. Primarily, the plan must be scalable (e.g., the process for a full evacuation may not be necessary if backup resources can be utilized in the current location). This may require a tiered or phased-in approach, where partial implementation of the plan may be the most appropriate course of action for the situation. A COOP plan always must anticipate and plan for the worst scenario, while also being useful when less severe emergency events occur.

Cybersecurity Planning

Cybersecurity threats have increased exponentially in recent years. It is no longer a matter of if but when an agency will be directly or indirectly involved in a cyberattack. PSAPs are a vulnerable and valuable target for attacks; effective and strategic cybersecurity planning, in addition to proper training, mitigation strategies, and protections, is necessary to sustain operations. Cybersecurity planning should be supported and initiated at the top of any organization as it impacts all aspects of the organization. Of the 12 PSAPs in the DMA region, only one agency reported having a cybersecurity plan.

Although DMA has robust cybersecurity measures in place to protect the CHE, there is a line of demarcation where cybersecurity from DMA services ends, and city or county services begin; it is in this space that the PSAPs are vulnerable to various cyberthreats.

There may be a greater need for cybersecurity awareness training, which is a component of planning. The National Institute of Standards and Technology (NIST) identifies awareness training as a key component in building an effective IT security program and notes that "a strong IT security program cannot be put in place without significant attention given to training agency IT users on security policy, procedure, and techniques."[8]

Appendix A contains a list of cybersecurity resources.

3.2 Revenue and Expenses

3.2.1 Summary of Findings

Findings Summary

- The highest budget impact in each PSAP is personnel costs—wages, benefits, and overtime costs—which are 90% to 100% of total operating expenses.
- All 12 PSAPs subsidize the PSAP operating budgets with general funds.

Funding is a key area of concern for PSAPs nationwide. Without appropriate funding, PSAPs are not able to upgrade technology as required, schedule staffing appropriately, or complete day-to-day operations efficiently. Funding can be identified from multiple sources, but without adequate funding, the efficiency of the agency suffers.

In many cases, PSAPs have been forced to seek alternate sources of funding as local and/or state funding is not adequate to support operations. Grant funding, while not as plentiful as in years' past, is a viable source of funding especially for technology projects such as NG9-1-1 system implementation or radio system replacement, to name a couple. Funding can also be in the form of cost savings, particularly from realizing economies of scale. A purchase made by multiple entities to benefit all (cost-sharing) tends to reduce the cost to each individual PSAP versus purchases made separately. Cost savings can also be realized from utilizing existing contract vehicles, where appropriate, to reduce funding needs.

3.2.2 911 Funding

DMA is one of four 911 districts in Wayne County that receives surcharge money—$0.42 per line—from the State. DMA receives approximately $1.8 million annually from the State and has approximately $1 million in annual expenses. According to fiscal policy, all costs must meet the definitions of the Office of Management and Budget (OMB)[9] as it pertains to DCC. The funds are generally used to support any equipment and infrastructure related to a 911 call.

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[8] Wilson, M. and Hash, J. (2003). Building an Information Technology Security Awareness and Training Program. National Institute of Standards and Technology, Special Publication 800-50 (p. ES-1)
[9] 2 CFR Part 200 (Uniform Grant Guidelines)

Table 3: DMA 911 FY2022 Budget

Budget Items		Amount
• System administrator (hours) • GIS coordinator • Administrative tasks (meetings, etc.) • Tower grounds • Other benefit costs • DMA Central allocation	• Travel • Supplies • Rent • Audit • Legal • Insurance	$163,189
911 CHE Support and Equipment		
• 911 software maintenance • IT services • DMA room • Comcast Metro-E contract		$415,075
Radio Equipment and Support		
• Radio oversight and programming • Software update for Motorola programming • Radio software maintenance monitoring • SBA tower lease, Taylor Tower		$366,787
HVAC		
• HVAC[10] preventative maintenance under contract • HVAC emergency call out • Electrical • Gas • Generators – preventative maintenance • Generators – noncontract work • UPS[11] annual preventative maintenance contract • GIS project		$62,780
	Total	**$1,007,831**
New Projects Estimated Costs		
• Switch replacement – all sites • Conduit at Riverview tower site		$240,000 $76,000
	Total	**$316,000**

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[10] Heating, ventilation, and air conditioning
[11] Uninterruptible power supply

MissionCriticalPartners

It is important to highlight that if funding from the State is reduced, the above core expenses would need to be covered by DMA's participating agencies.

Given the increasing costs of technology, including aging infrastructure and equipment and systems replacement costs, in addition to consolidation needs, there is interest in exploring an increase to the surcharge. All four districts in Wayne County would have to agree and it would go to the commissioners for consideration. The surcharge could be increased up to $1.00 per line, which would more than double the revenue for DMA.

3.2.3 PSAP Funding and Expenses

Since most PSAPs operate as a division under a law enforcement agency, their budgets are imbedded into the law enforcement budgets. Most agencies reported little overhead and other costs, with personnel costs totaling 90% to 100% of the overall operating budget expenses. All 12 PSAPs subsidize operating budgets with general funds because DMA does not pay for workforce expenses (telecommunicator wages and benefits). Agencies are also responsible for their own training expenses, which can occasionally be reimbursed by the State; however, most training expenses come out of the municipal budgets.

Appendix B, PSAP Budget Comparison, contains the operating budgets for the 12 PSAPs.

3.3 Operations

3.3.1 Summary of Findings

Findings Summary

- All the PSAPs perform call-taker duties simultaneously with dispatching. There is no clearly defined separation of tasks; this is common as the PSAPs are small.
- With the exception of DCD, each PSAP uses sworn personnel to fill the role of telecommunicators, fill in gaps, and/or cover for breaks when needed due to staffing.
- The majority of the PSAPs reside in and support a law enforcement agency.
- All PSAPs have ancillary duties.
- All the PSAPs dispatch for police, fire, and EMS.
- Two PSAPs—DCD and Grosse Ile—provide emergency medical dispatch (EMD) consistently. Flat Rock and Brownstown have EMD flip cards available, if needed.
- Rockwood and DCD reported they have standard operating procedures (SOPs) specifically for the PSAP; the remaining PSAPs do not have SOPs or follow their police department policies.
- The 12 PSAPs have contiguous borders (with the exception of Gross Ile, which is separated by the Detroit River, accessible by bridge) and tend to monitor their neighboring agencies' radio traffic in the event they are needed to assist with an incident.

The PSAPs operate with a minimum of one to two staff per shift, comprised of a combination of both sworn law enforcement officers and/or civilian full- and part-time staff. DCD is the exception to this with an average of three civilian telecommunicators per shift. All the PSAPs fall under a law enforcement agency

for oversight. DCD has a civilian "lead dispatcher" who works with the chief's administrative assistant to track telecommunicator training hours and submit them to the State as required. While DCD's lead dispatcher assists with supervisory tasks, it is a working position with the primary duties of emergency call processing and radio dispatching.

All telecommunicators in the DMA region are cross-trained to answer emergency calls and dispatch police, fire, and EMS. Cross-training and operating in a vertical configuration can benefit PSAPs in many ways, including scheduling staff, increasing productivity, and allowing for effective succession planning; however, PSAPs integrating call-taker duties along with sworn personnel responsible for field duties and/or events while assigned to the PSAP are prone to mishaps due to the lack of clearly defined functions, accessibility, and certified skillset training.

Numerous reasons exist why an organization elects to operate the way it does. PSAPs that can operate with a configuration where staff have clearly defined functions as call-takers and dispatchers during a shift (i.e., there are those that just call-take and those that just dispatch) are typically more efficient and have a lower rate of errors. Even if errors are caught before they impact a response, such as mistyping a unit number or license plate but backspacing and making the correction before being entered into a CAD record, it is still an error that reduces overall efficiency.

Best practice models for PSAP operational configurations indicate that a clear configuration with identified separate responsibilities is more efficient in reducing the complexities and risks associated with multitasking (more accurately known as task-switching). Psychology Today[12], among others, concludes that an organization can lose up to 40% of staff productivity, listing numerous risks to the mind and body, from multitasking:

- Can lead to memory problems
- Can lead to increased distractibility
- Can harm relationships
- Increases chronic stress
- Increases depression and social anxiety
- Results in reduced productivity and efficiency[13]

Another element related to clearly defined functions is staffing considerations so that telecommunicators are not responsible for a secondary function simultaneously (e.g., telecommunicator is not responsible for monitoring the lobby, assisting with the walk-up window, or that the fire and/or police dispatcher does not receive ring overs from the call-taking section). While no standard exists regarding this common operational practice, there is an increased risk that an organization must consider when relying on this configuration to meet call-answering standards. That risk revolves around conflicts that may occur between emergency radio traffic and an emergency call of perceived equal priority. For instance, does the telecommunicator choose to delay transmitting for additional apparatus, pause cardiopulmonary resuscitation (CPR) instructions, or bypass protocol instructions in order to release the caller and focus on radio dispatch?

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[12] The True Cost of Multi-Tasking | Psychology Today
[13] 10 Real Risks of Multitasking, to Mind and Body | Psychology Today

Any configuration that does not provide separate call-taking and dispatch positions inherently increases the risk exposure for the PSAP, its staff, and those it serves, which is why it is essential that the risks be known.

3.3.2 Ancillary Duties

It is not unusual for PSAP staff to be assigned ancillary duties, especially when the PSAP is a division of a law enforcement agency; however, it can impact the utilization rate, focus, and efficiency of the telecommunicators. At times, it may be particularly challenging for telecommunicators to juggle the non-core duties with higher priority emergency communications. Further, agencies that require their telecommunicators to perform certain ancillary duties may create scenarios where the telecommunicator is taken away from their primary duties of answering emergency calls and dispatching field responders, and their workload is impacted.

Several PSAPs within DMA require telecommunicators to perform non-core duties, even while operating with only one telecommunicator. Examples of non-core functions that are being performed within the DMA PSAPs are shown below.

- *Jail Duties* – Includes a range of duties such as assisting with booking; monitoring booking, holding, detox, juvenile, bullpens, and jail cells as both primary and secondary functions; serving meals; logging hourly checks; and receiving bond money. At Taylor Police Department (PD), when there is a jail incident, the sworn lieutenant will leave the PSAP to assist. This in turn reduces staffing to one telecommunicator for that period.

- *Security* – Includes monitoring interior and exterior security cameras for remote municipal facilities, high crime areas, train tracks (for ingress/egress access), traffic, and, when needed, a live-feed at schools.

- *Administrative Duties* – Includes administrative call triaging and processing administrative-related requests and inquiries (internal or external) along with communications with bus drivers and schools.

- *Walk-Up Window* – Includes actively staffing the main lobby/walk-up window of the police department to handle citizen requests, processing transactions involving cash (e.g., tows, dog licenses, Freedom of Information Act [FOIA] requests, parking violations,) and the sex offender registry.

- *Support Municipal Services* – Includes supporting the police and fire departments, and other municipal departments (e.g., animal control, public works) public service officers, secondary ambulance services, and specialized teams and/or making after-hours notifications (e.g., Detroit Edison).

- *Weather Sirens and Reverse Notifications* – Includes activating the severe/emergency weather alerts and/or sirens, making related notifications, and generating other mass notifications[14].

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[14] All PSAPs use CodeRed for reverse notifications.

- **Other** – Includes, when requested, allowing building access and opening/closing jail doors and fire department bay doors.

3.3.3 Standard Operating Procedures

Rockwood and DCD reported they have SOPs specifically for the PSAP while the other PSAPs do not have any SOPs or follow their police department policies.

It is essential to risk management that a PSAP has clearly defined SOPs that present a set of uniform procedures for every member of the PSAP to follow. In addition to being well-researched, well-designed, well-written, well-trained, current, and accurate, it is important the SOPs are readily available and accessible to all staff, preferably online.

A well-researched SOP is one that relies on information gathered from agencies or sources outside one's own. A well-designed SOP is one that covers the information it claims to and should be confined to a limited topic and not drift into other areas. A well-written SOP is easy to understand and follow; it should have a logical flow and not use confusing language.

A key to good SOPs is that they must be well-trained to be effective. Training on SOPs can take several forms, including using software programs that track the status of employee reviews, and can vary depending on the level to which an agency is already trained.

Current and accurate are the final two components of good SOPs. Even the best-written SOP manual will become obsolete if it is not regularly reviewed and updated, which necessitates a policy that defines the timeframe and how SOPs will be reviewed and updated. An annual review of every policy that includes representatives from the PSAP and field responders is generally the best practice. Relevancy, content, accuracy, and applicability should be considered, as should changes in the organization's technology, structure, and size.

Throughout the country, PSAPs align SOPs with industry standards and best practices to assure the effectiveness of the center and the best possible service is provided to citizens and field responders. PSAPs are unique and require SOPS that are applicable to actual PSAP operations, technologies, and facilities. PSAP SOPs may be directly tied to performance management, service levels, and risk mitigation. Measurable standards create an objective view of 911 operations and provide for consistent interactions with the public and field responders. Content for SOP development that aligns with industry standards and best practices can be found within standards from the Association of Public-Safety Communications Officials (APCO) International and the National Emergency Number Association (NENA)—two accredited standards development organizations that have published standards and best practices. Improved service and efficiencies may be gained for those PSAPs in the DMA by developing a consistent template that can be easily adapted and applied to those PSAPs in need of SOPs.

3.3.4 Use of Call Processing Protocols

A clearly defined, standard procedure for call-taking is important to PSAP operations as it promotes uniformity of process, reinforces training, and reduces errors. Standardized protocols were first developed for emergency medical calls to provide consistent zero medical-response-time guidance by asking

questions in the proper order—thereby maximizing caller information—and improving field response. Now protocols are also available for fire and law enforcement. Whether an organization utilizes a third-party set of protocols or has developed its own, protocols and any pre-arrival instructions must be clearly defined and align with standards—even voluntary standards such as those developed by the American Society for Testing and Materials (ASTM).

Protocol use is also known to be an easier approach to training new call-takers as opposed to "freelancing" questions or relying on life experiences while trying to obtain essential and useful information from callers.

Two PSAPs—DCD and Grosse Ile—provide EMD consistently, while two others, Flat Rock and Brownstown, have EMD flip cards available as needed. The remaining PSAPs do not use protocols and do not provide EMD, which creates a disparate level of service within the region.

3.4 Training, Quality Assurance, and Performance Management

3.4.1 Summary of Findings

Findings Summary

- The State has mandatory training requirements.
- Most PSAPs in DMA do not have structured training programs and training is mainly on-the-job training (OJT).
- The majority of agencies in DMA do not have structured QA/QI programs.

3.4.2 Training

The duties of a telecommunicator are extremely difficult, and opportunities for mistakes within the profession increase when proper training is lacking or absent entirely. With proper training, the likelihood of mistakes decreases. Citizens and first responders alike should receive the same work product from a telecommunicator in Michigan as they do in California. Adopting a training program that adheres to state and/or national standards is a way this can occur. Standardized training and processes offer citizens a familiarity with what to expect when calling 911. In turn, consistency and education promote trust and support from both the community and field responders.

Minimum training requirements for a PSAP are defined in several national standards. The most widely referenced for telecommunicators specifically is the *APCO Minimum Training Standards for Public Safety Telecommunicators.*[15]

The Michigan Public Service Commission has established administrative rules mandating that all primary PSAPs in the state maintain a minimum training standard for every telecommunicator.[16] Failure to comply may result in a reduction in 911 funding support from the State.

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[15] https://www.apcointl.org/services/standards/find-standards/?a_type%5B%5D=Training&a_s=
[16] Michigan M.C.L. 484.1413 (1)(b)

The majority of PSAPs in DMA do not have a structured training program and rely primarily on OJT. Some agencies have very abbreviated training, which amounts to a cursory introduction to equipment and unwritten/unscripted procedures. Due to the current staffing challenges facing many of the PSAPs, training is completed outside of work hours or there is a reliance that the telecommunicator, primarily the part-time employees, will receive the required training from their primary agency. When training has not been completed and a skillset is expected to be performed, this increases both stress and liability. DMA is working with agencies to improve compliance with the State mandate.

3.4.3   Quality Assurance and Performance Management

A QA/QI program is an essential component of 911 communications as it can improve the level of service provided to citizens and is a best practice to improve overall PSAP performance. Establishing a QA/QI program places the PSAP in a proactive state rather than reactive. QA is another way that performance management can be applied.

According to the American Society for Quality (ASQ), QA is "part of quality management focused on providing confidence that quality requirements will be fulfilled."[17] In a PSAP environment, this equates to "all actions taken to ensure that standards and procedures are adhered to and that delivered products or services meet performance requirements."[18] The process of conducting quality audits, or the systematic review of telephone and incident recordings, is required by the *Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points.*[19]

In today's 911 environment, having a QA/QI program is the recognized standard of care. Through a QA/QI program, calls are reviewed, feedback on performance is provided, and compliance with policies, procedures, standards, and best practices is safeguarded.

The majority of agencies in DMA do not have a structured QA/QI program and resort to a review of incidents when prompted by an investigation.

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[17] "Quality Assurance vs. Quality Control." American Society for Quality. https://asq.org/quality-resources/quality-assurance-vs-control. Viewed July 31, 2019.
[18] "*Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points (APCO/NENA ANS 1.107.1-2015,*" Association of Public Safety Communication Officials, National Emergency Number Association. https://cdn.ymaws.com/www.nena.org/resource/resmgr/Standards/APCO-NENA_ANS_1.107.1.2015_Q.pdf
[19] https://www.apcointl.org/services/standards/find-standards/?a_type%5B%5D=Operational&a_type%5B%5D=Training&a_s=

3.5 Personnel and Workforce Management

3.5.1 Summary of Findings

> *Findings Summary*
>
> - The majority of PSAPs in the DMA region are small, with one to two positions and a minimum of one or two employees per shift.
> - Low staffing limits the capacity potential of the majority of PSAPs in the DMA region and creates an environment that may challenge a PSAP to effectively manage a workload surge and/or call overflow from neighboring agencies.
> - The majority of PSAPs experience challenges related to hiring and retaining qualified applicants.
> - The most common timeframe for an employee to washout is within the first three to six months of employment, which is generally the initial training stage.
> - The average salary of telecommunicators in the DMA region is $17.42 (low), $22.44 (middle), and $24.27 (high).
> - Almost 50% of the telecommunicators employed within the DMA region are part-time employees.
> - Eleven out of 12 PSAPs rely on sworn officers to cover the dispatch positions—either for routine coverage, call surge, and/or staffing shortages.
> - Of the 11 PSAPs covering dispatch with sworn officers, two (Ecorse and Woodhaven) utilize only command-level sworn officers to work a dispatch position while supervising the street and/or prisoners.

Today, organizations throughout the world over face many challenges in the management of their personnel—their human capital—and public safety agencies are no exception. Personnel management is different than organizational leadership and involves a variety of functions that encompass more than just staffing, including personnel planning, development, and compensation to name a few.

The HR function in any organization is important and, without proper attention, even the best organizations can falter. One of the most critical HR functions within any PSAP is that of personnel management. Personnel are an agency's greatest asset, and proper management must be exercised to maintain an effective and efficient operation. Personnel management is a specialized aspect of an organization's overall HR management practices that focuses on those policies and practices by which the agency hires and develops its workforce.

Many PSAPs across the country are struggling with staffing shortages. Tenured employees are retiring, while others simply leave for any number of reasons—shift work, the hours, childcare issues, stress, and better pay in the private sector. While there is no lack of applicants for open positions, the often-stringent job qualifications (e.g., background checks, prior drug usage) disqualify many, as do the lengthy application processes; it is not unusual for many PSAPs to have processes that take upwards of six months from application to start date. Thus, PSAPs often find themselves with a revolving door for staff; unfortunately, many are not able to fill the vacancies before more staff leave, creating an even larger gap.

3.5.2 Staffing

Anywhere from one to three telecommunicators are on duty at any given time in the DMA region, and most PSAPs have one telecommunicator on duty at any given time, as shown in the table below. In total, PSAPs in the DMA region employ 45 full-time and 41 part-time telecommunicators, and a minimum of 15 are on duty throughout the region at any given time. Throughout DMA, dispatch positions are covered by a mix of civilian telecommunicators and sworn law enforcement officers For Ecorse and Woodhaven, dispatch is covered solely by a sworn supervisory or command-level officer. Almost all the PSAPs use command staff to cover dispatch positions during staffing shortages.

Table 4: Staffing and Turnover

PSAP	Telecommunicators (authorized strength)	Minimum Staffing	Turnover Rate	Notes
Brownstown	4 – Full-time	1	0%	Primarily civilian dispatchers. Sworn officers are used to cover vacations and sick time.
Ecorse	4 – Full-time	1	33.3%	All four are sergeants.
Flat Rock	1– Full-time 1 – Part-time	1	25%	Mix of civilian and sworn.
Gibraltar	10 – Part-time	1	25%	Primary dispatchers are civilian. Sworn officers will cover in an emergency situation, which is not that often.
Grosse Ile	5 – Full-time	1	16.7%	Mix of civilian and sworn. Nine shifts per month covered by sworn officers.
River Rouge	3 – Full-time	1	25%	Mixed of civilian and sworn. Sworn officers cover approximately 15 12-hour shifts per month.
Riverview	6 – Part-time	1	11.10%	Mix of sworn and civilian
Rockwood	8 – Part-time	1	25%	All civilian.
Taylor	16 – Full-time	2	28%	Mix of sworn and civilian,
Trenton	10 – Part-time	1	10%	Mix of sworn and civilian.
Woodhaven	4 – Full-time	1	9%	Full-time command staff only. No civilian dispatchers.

PSAP	Telecommunicators (authorized strength)	Minimum Staffing	Turnover Rate	Notes
DCD, which includes: — Wyandotte — Lincoln Park — Allen Park — Southgate	8 – Full-time 6 – Part-time	3	25%	Civilian dispatchers only.
Total	**45 – Full-time** **41 – Part-time**	**15**	**19.41%** **(average)**	

Telecommunicators working throughout the DMA region are cross-trained and there are very few PSAPs with a separation between the call-taker and dispatcher roles. In other words, most often the call-taker also is responsible for dispatching the call and handling other non-core duties. The low staffing limits the capacity potential of the majority of PSAPs in DMA and creates an environment that may be challenging if a PSAP needed to manage a workload surge and/or call overflow from neighboring agencies. This issue was raised in numerous interviews related to evacuation procedures; PSAPs can reroute their 911 calls to another agency, but that backup location may not have the capacity to manage the increased workload.

3.5.3 Supervision and Span of Control

Span of control guidance in general used to be clear with three to seven direct reports per supervisor, with five considered ideal. However, new guidance regarding the span of control is how many people can be effectively managed, leaving it up to each agency to determine the number.

The International Customer Management Institute (ICMI) notes, "In contact centers, somewhere between 8 and 12 agents per supervisor makes sense in many centers. But a 5:1 or 20:1 ratio may be equally justifiable – there's simply no alternative to understanding your own unique environment and making a decision that is right for you."

In the DMA region, supervision is most commonly the responsibility of law enforcement command personnel, supported by a frontline supervisor or lead telecommunicator in a few cases. Direct report span of control, without question, is satisfactory; however, with only one telecommunicator per shift in many instances and limited available supervisors, there are telecommunicators without the benefit of direct supervision.

Unfortunately, this leaves the responsibility for handling problems to the lone telecommunicator, no matter their experience. When supervisors are not available, opportunities for training, performance monitoring and feedback, and correction are inhibited. This puts undue stress on employees and leaves the organization vulnerable to risk due to lapses in service. This is particularly important where the telecommunicator has other ancillary duties.

The effectiveness of supervision in a PSAP is impacted by its operational configuration. Depending on the size of the organization, it is not unusual for small PSAPs to have working supervisors who are not only responsible for operational oversight of a shift or organization, but simultaneously perform as a telecommunicator. Likewise, it is also not unusual for small agencies to fall under the command structure of a law enforcement agency. Throughout DMA, it is prevalent for command staff to be assigned to work a dispatch position alone while also supervising the street and, in some cases, monitoring the jail.

3.5.4 Recruiting

It is becoming increasingly more difficult to recruit candidates to the position of telecommunicator within the state of Michigan and across the nation. There is great concern that the staffing shortages in public safety communications will increase in the NG9-1-1 environment and will be exasperated by a workforce that desires more work-life balance. Staff interviewed reported low interest in the position and reduced viable applicant pools from which to hire. In some cases, the PSAPs are receiving a sparce two viable applicants per job posting, which is not sustainable. This is a common issue in all sectors of public safety and was exacerbated by COVID and "the great resignation." There are also challenges with the PSAPs in DMA competing against each other and the private sector for applicants. Not only are there disparate salaries, but also disparity between full- and part-time employment opportunities that may determine whether benefits are offered or not.

The process of hiring is often long and arduous, especially when compared to the private sector, and many DMA members reported that they are trying to streamline the hiring process and reduce the application-to-hiring time. Each PSAP is approaching this independently and at significant cost when considering that those who leave typically do so within three to six months, at which point the PSAP must do it all over again.

While there are no recruiting or hiring standards, several best practices can help PSAPs achieve success in choosing the right applicant for the position and onboarding them. NENA and APCO both offer courses, staffing and retention reports, and related occupational standards geared toward PSAP staffing.

An effective recruiting program engages a broad spectrum of outreach sources, is reflective of the community's makeup, and considers external influencers, particularly those along municipal and jurisdictional lines. When assessing recruiting practices, agencies should consider:

- Use of social media and external websites
- Application source tracking
- Currency of eligibility requirements
- Response to job postings
- Dedicated and staffed recruiting program
- Pipeline approach to recruitment
- Use of self-elimination tools
- Use of value propositions
- Diversity of recruiting opportunities
- Continual posting strategies

3.5.5 Retention

Employee retention is a challenge that continues to strain PSAPs across the nation and the DMA region is no exception. Less than half of the PSAPs interviewed reported stable staffing, and the ones that did indicated that staffing was not consistent year to year. PSAP staff indicated that the three most common reasons for turnover are:

- Employees seeking a fulltime position, with benefits
- Employees cannot master the job
- Employees are unwilling or unable to meet the demands of a 24 x 7 position

A recent update to APCO's previous staffing and retention study concluded that the average retention rate for PSAPs is 71%.[20] This same study identified nine factors that drive employee commitment and have a direct impact on retention, including supportive supervision, co-worker support, and opportunities for promotion. The turnover, however, affects other areas of the organization:

- Lower organizational morale
- Lower organizational engagement
- Lower organizational performance
- Additional training for new employees
- Loss of knowledge retention

The average turnover rate in the DMA area is 19.41%, which is below the national average; however, as highlighted in Table 4, some PSAPs in the region have a turnover rate that is significantly higher than the national average (28% to 33%).

The long-term implications of continued turnover open the door for more people to leave. Unfortunately, smaller PSAPs often are impacted to a greater degree than larger centers that have more staff to absorb the resulting vacancy.

The more work demanded, the less desirable the working conditions, the more turnover created. When more turnover is created, this leads to more work demanded from existing staff and less desirable working conditions. It can increase to the point that a PSAP may never see a "full staff" level again. However, not all turnover is bad. "Some turnover is healthy because it weeds out the disengaged ..."[21]

An earlier APCO Project RETAINS report stated, "The strongest and best predictor of a high retention rate was having all authorized positions filled and being fully staffed."

Based on MCP's experiences and numerous interactions with PSAPs and industry professionals, an effective retention program is one in which the organization is consistently within 5% of filling all authorized positions and can achieve an outcome where 80% of employees still are on the job three years later.

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[20] Project RETAINS: Staffing and Retention in Public Safety Answering Points (PSAPs): A Supplemental Study." APCO Project Retains, APCO International. https://www.apcointl.org/resources/staffing-retention/project-retains/
[21] Fox, Adrienne. "Drive Turnover Down." SHRM. July 1, 2012. https://www.shrm.org/hr-today/news/hr-magazine/pages/0712fox.aspx

3.5.6   Salaries and Benefits

According to the U.S. Bureau of Labor Statistics and U.S. Department of Labor, the median wage for police, fire, and ambulance dispatchers is $46,670 or $22.44 an hour (2021).[22] The average top tier hourly wage for telecommunicators in the DMA region is approximately $22.83 an hour. Of the 12 PSAPs, Brownstown has the best-in-class highest average telecommunicator wage at $24.47 an hour. Seven PSAPs in the DMA region are below the national average while five are above the national average for telecommunicator salary. It is noteworthy that the two highest paid wages (Ecorse and Woodhaven) are staffed only by commander and sergeants serving a dual role that includes answering emergency lines and dispatching field responders.
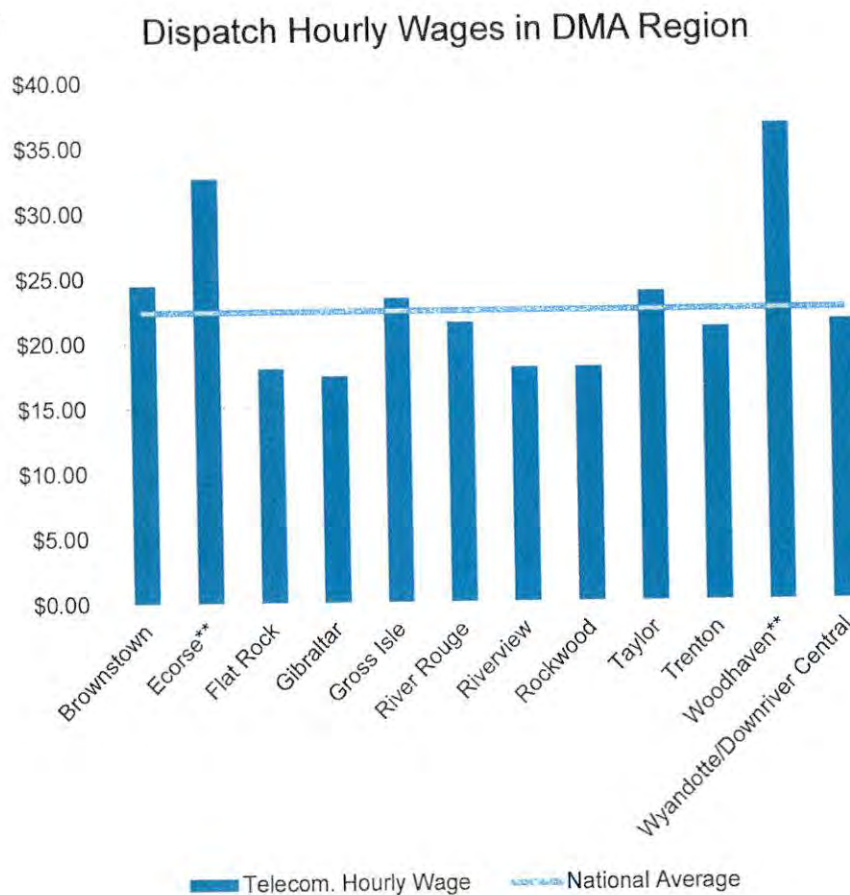

Figure 4: Dispatch Top Tier Hourly Wages in DMA Region[23]

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[22] Police, Fire, and Ambulance Dispatchers: Occupational Outlook Handbook: U.S. Bureau of Labor Statistics (bls.gov)
[23] Ecorse and Woodhaven are hourly sworn command and supervisory officer wages.

Given the proximity of the PSAPs, there is competition between them when it comes to hiring. Those agencies that lag below the average are prone to losing employees to other centers that may pay more or have more desirable benefits. There is also considerable risk with the competition from private sector companies for the agencies that are at the low end of the scale. This disparity and competition include benefits, which significantly impact the PSAP's ability to attract and retain employees, especially as some agencies do not offer benefits to their part-time employees. This highlights the importance of regular compensation studies that determine comparative salaries and benefits within the DMA region as well as an opportunity for DMA members to establish common compensation ranges.

3.5.7 Collective Bargaining and Pension

The PSAPs in the DMA region are represented by numerous collective bargaining groups with various workforce rules and obligations. Some collective bargaining groups represent both full-time and part-time dispatchers.

All the dispatchers with benefits are in the Municipal Employee's Retirement System (MERS) pension system, which provides pensions to law enforcement, teachers, and dispatchers in the state of Michigan.

3.6 Technology and Systems in Use

3.6.1 Summary of Findings

Findings Summary

- Primary PSAP systems are already virtually consolidated and supported by DMA infrastructure.
- There is an Emergency Services Internet Protocol (IP) network (ESInet) between all DMA PSAPs.
- Current core technology could be leveraged to improve situational awareness and interoperability between agencies (e.g., ability to route calls within the CHE and share incidents in CAD).
- Calls are set to rollover between PSAPs; however, there is often only one staff member on duty at the rollover PSAP.
- Misrouted wireless 911 calls are a common occurrence.
- DMA field responders use a common Motorola 800 megahertz (MHz) radio system provided by DMA.
- In addition to shared talkgroups, each PSAP operates its own dispatch talkgroup for law and fire/EMS. DCD has dedicated dispatch talkgroups for its agencies.

Public safety dispatch operations are heavily dependent on IT infrastructure, computer systems, and multiple applications. Mission-critical systems include 911 CHE, CAD systems, radio dispatch consoles, GIS databases and mapping, and data/voice logging recorders. This IT infrastructure is critical to the daily public safety mission and provides interoperability with other PSAPs and field responders.

> **Interoperability:** The ability of two or more systems or components to exchange information and to use the information that has been exchanged.

Critical systems and infrastructure can be very costly to acquire and maintain. Increasing technology costs have become a primary issue, often driving dispatch regionalization efforts in the United States. Officials in many jurisdictions have pursued PSAP regionalization to reduce capital expenditures and operating costs. Software maintenance agreements and upgrades increase the total cost of ownership over the life of a system. Reducing the number of PSAPs often is intended to eliminate the need to purchase and maintain multiple systems within the same geographic area.

The core technology systems in use within the DMA region and the network that supports these applications lay the foundation for regionalization. As described below, all PSAPs share the same CHE, radio system, and, with the exception of Ecorse and Taylor, the same CAD and GIS.

3.6.2 Call-Handling Equipment

DMA provides a host/remote Motorola VESTA® 911 call-handling solution to all its member agencies. It maintains the CHE servers at two host locations (DCD and Taylor PD) connected by a primary ESInet supplied by Peninsula Fiber Network Next Generation Services, LLC (PFNNGS) and two separate fiber-optic carrier networks owned by AT&T and Comcast Communications. The CHE is NG9-1-1-compliant. Given the hosted solution, calls can be routed between PSAPs via the ESInet. This configuration also supports call overflow and disaster re-route capabilities.

The challenge lies in the fact that a neighboring PSAP may only have one telecommunicator on duty and may not be able to adequately support the overflow of 911 calls. In addition, all PSAP's provide text-to-911 via the INdigital Texty application. Each PSAP is also supported by a backup INdigital IP-MEVO telephone that can be used to answer 911 calls in the event of a workstation failure. The ANI/ALI[24] database is maintained by both Intrado and INdigital. While DMA has worked with cellphone carriers to update the cell tower routing to the correct PSAP, staff reported misrouted wireless calls are still a common occurrence.

Most of the PSAP's administrative phone lines are standalone systems rather than being integrated into the CHE. DCD uses an automated attendant for routing the administrative calls to the respective police departments or dispatch for the member agencies.

3.6.3 Computer-aided Dispatch and Records Management Systems

With the exception of Ecorse and Taylor, all PSAPs in DMA use a shared Tyler Technologies New World CAD system. Ecorse uses a Core Technologies CAD system, while Taylor uses Oakland County's Courts and Law Enforcement Management Information System (CLEMIS) CAD system. Users of the New World

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[24] Automatic Number Identification/Automatic Location Identification

CAD have access to the New World records management system (RMS) and related interfaces or modules. Ecorse PD utilizes Core RMS, while Taylor PD utilizes the CLEMIS records management software.

Both the Tyler CAD system and CLEMIS supports mobile data terminals (MDTs).

3.6.4 Geographic Information Systems

The DMA has a part-time GIS coordinator and contracts with GeoComm for updates to the Tyler New World CAD. The GIS coordinator receives information from the PSAPs regarding new address ranges and streets as well as ALI discrepancies and coordinates with GeoComm to have the updates added to the GIS map and then loaded into the Tyler New World map. These updates are provided quarterly.

Secondary wireless location services are provided by RapidSOS.

3.6.5 Radio

The primary radio system in use within the DMA service area is the DMA Project 25 (P25) Phase 1[25] Motorola 800 MHz trunked radio system. The system includes individual, group, and mutual aid talkgroups. The system supports police, fire, EMS, and public works users. A majority of the police and fire agencies are dispatched on individual dedicated primary agency talkgroups. DCD agencies operate on shared talkgroups (DCDFD1 and DCDPD1), while Trenton and Woodhaven operate on the South PD talkgroup. Additional shared talkgroups are used for automatic mutual aid. DCD fire agencies operate on automatic mutual aid and use DCDFD2 for a common response channel. Taylor Fire intends to switch to the statewide radio system provided by Western Wayne County later in 2022. It intends to maintain radios on the DMA system for mutual aid and interoperability.

Interoperability with the Wayne County Sheriff's Office and neighboring partners of Western Wayne, East Detroit, and the City of Detroit Airport are accomplished using Michigan's Public Safety Communications System (MPSCS).

Some EMS calls are handled by private EMS. The PSAPs have no direct radio communications with these units.

All PSAPs utilize Motorola AVTEC Scout consoles, which were installed in 2013. The PSAPs have the ability to share resources or have backup profiles created. Each PSAP has a backup consolette radio in the event of a console failure.

3.6.6 Logging Recorder

The PSAPs use a variety of logging recorders. A majority of the PSAP's use the Equature platform; Woodhaven uses a NICE product. The PSAPs procure the logging recorders for their specific agency needs and record 911 lines, administrative lines, 10-digit emergency lines, call transfers to administrative lines, and field responder radio traffic. Most solutions are digital; five solutions are analog only.

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[25] Project 25 - APCO International (apcointl.org) Interoperability Standard

The VESTA call-handling system logs all 911 calls and provides instant recall recorder (IRR) functionality at the consoles.

3.6.7 Other Systems and Software

Many DMA PSAPs support closed circuit television (CCTV) camera feeds from the respective police department facility, jail, community facilities, or schools. Telecommunicators are often responsible for the remote control of jail or police station doors and, in some cases, fire department bay doors.

3.6.8 Alert and Warning Systems

Rockwood, Woodhaven, Flat Rock, and Grosse Ile utilize very high frequency (VHF) tone and voice paging for fire/EMS, in addition to tornado warning siren activations. Gibraltar uses the same system to alert residents of high-water warnings from the National Weather Service. The other fire agencies use tone alerting via 800 MHz radio on an Alert talkgroup along with the Active911 application. Some departments utilize the IamResponding application to track personnel responding to incidents.

3.6.9 Network and Technical Support

The network backbone for DMA is provided by a Comcast Metro Ethernet network as a primary ESInet that supports CHE, CAD, and radio systems. In addition, each PSAP site has a redundant network connection from a secondary provider to PFNNGS on the ESInet.

The DMA system administrator supports all PSAPs' CHE, radio, and CAD systems and is the primary point of contact for PFNNGS.

3.7 Facilities

3.7.1 Summary of Findings

Findings Summary

- All DMA PSAPs are not in standalone buildings, rather they are located inside a law enforcement facility.
- Many PSAPs are in public-safety-grade facilities suitable for essential services.
- The majority of PSAPs are at capacity for current operations with limited ability to expand without significant cost.
- The majority of PSAPs have no viable long-term backup facility that could house mission-critical equipment and staff.
- All PSAPs have generators and UPS equipment.
- Many PSAPs lack the ability to support staff from another agency for a prolonged period.
- The current PSAPs predominately house one and two workstations.

- Brownstown has identified potential suitable space in its PSAP and vacant land outside and adjacent to the police department for a regional center.
- Potential backup sites was identified at the old fire station in Taylor or the existing Wyandotte DCD facility.

3.7.2 Primary Facilities

All PSAPs are located within police department facilities. Each facility is supported by a backup generator and individual UPS units for mission-critical equipment. Of the existing PSAPs, most are not suitable for hosting a regional communications center. With the exception of DCD and Taylor PD, the other PSAPs within DMA have one or two full operator positions with little room to expand the dispatch area.

During facility tours, the project team identified potential options for modifications to the Brownstown Police Department (BPD) facility. These options are discussed in Section 4.2.2.1, Primary Regional PSAP.

3.7.3 Backup Facilities

Currently there is not a designated backup facility for the entirety of the DMA service area. That said, based on the nature of the technology supporting each PSAP, there is the ability to reroute 911 calls and relocate to another PSAP during an evacuation or outage. However, most PSAPs can only support limited relocated staff with only one or two available workstations.

The recommendation for a backup PSAP is discussed in Section 4.2.2.2, Backup Facility,

4 Future State Visioning

Until this point, the report has focused on the current state of the 12 PSAPs in DMA and how they operate independently. From MCP's perspective, because there is motivation to improve service delivery, the only responsible option is to pursue regionalization. Without regionalization, standalone PSAPs are bound to the current state, unable to provide a higher or more efficient level of service due to call transfers, lack of situational awareness, staffing challenges, and challenges related to the space and maintenance of the facility that houses a respective PSAP. This is further amplified by historic inflation, a decrease in the number of people actively seeking work and increasing costs of maintaining operations of what are classified as small or very small PSAPs. Planning for the future of public safety communications in DMA is a key effort that should be given priority attention.

As consultants, MCP can help increase awareness of the risks associated with the current state and make recommendations that may mitigate those risks, but as a region, county, municipality, or individual agency, stakeholders will need to decide if the cost to mitigate that risk outweighs the cost of not mitigating the risk. That is, what are a variety of outcomes worth compared to the one-time and recurring costs and modernization of the oversight for a regionalized (consolidated) center? While MCP believes that regionalization is not only feasible through consolidation of operations but warranted in the region, those

questions are not ones that a consultant can answer directly but can help decision-makers with informed decisions through risk awareness.

Since 911's inception in 1968, public safety officials have continued to leverage technology advancements to make emergency response more efficient and effective. The counterbalance is these advancements occurred in distinct silos that unintentionally developed within the emergency communications ecosystem such as enhanced 911 (E911) service, CAD, and digital radio networks. Today, we are in the midst of another technology transformation—NG9-1-1. As public safety moves through this transformation to NG9-1-1 over the next several years and beyond, it is more critical than ever that PSAPs begin thinking of the ecosystem holistically.
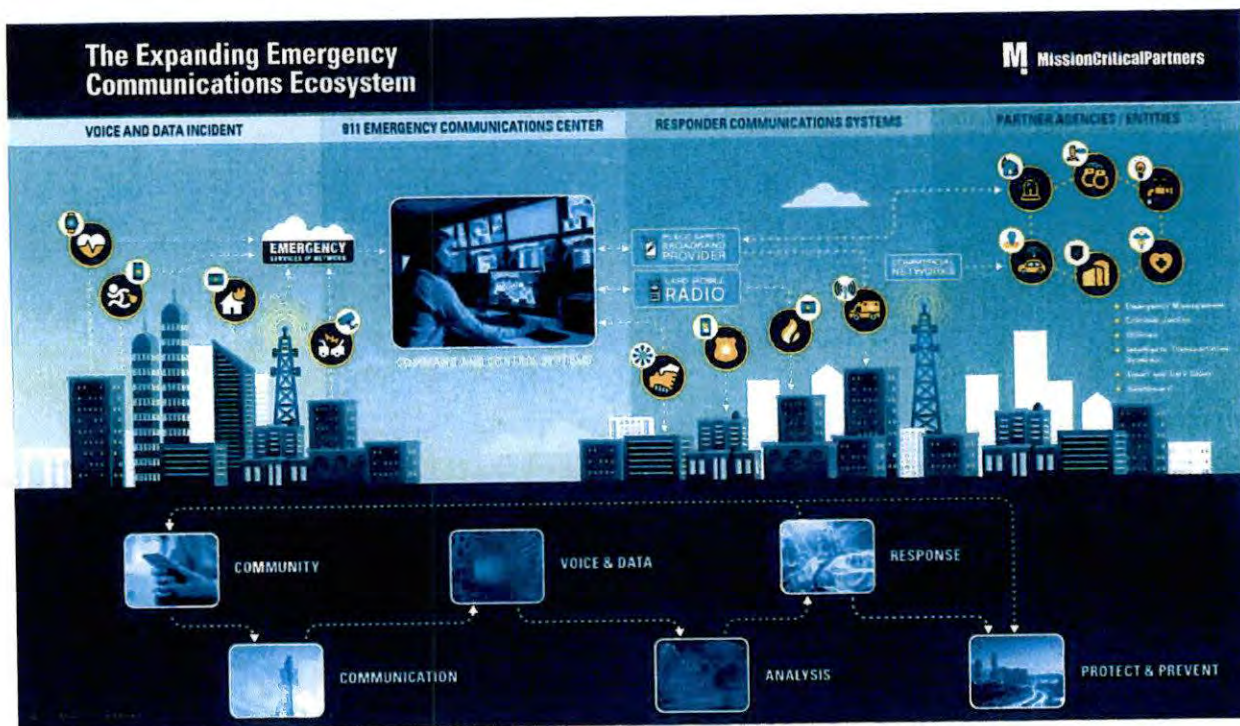
Figure 5: Emergency Communications Ecosystem

In many instances, data is evolving faster than agencies can keep up, resulting in smaller PSAPs continuously getting left behind. Regardless of size, those that are unwilling to explore their options run the risk of exacerbating the problem by creating holes in the ecosystem, increasing risk exposure, and introducing points of failure into an otherwise efficient and effective system.

The advanced technology supported and funded by DMA creates opportunities for regional partnerships between DMA members as NG9-1-1 functionality supports a larger platform of interoperability than the legacy phone system could. NG9-1-1 will be a facilitating factor for the operational advantages that regionalization affords, such as improved roaming profiles, better COOP and DR plans, and increased sharing of data, software, and radio channels—possibly resulting in a reduction in the number of PSAPs in

the DMA region. This will require a greater amount of group participation, collaboration, administrative oversight, and governance.

Just by the fact that DMA recognizes the value of exploring alternative operating solutions, and even though the process of being assessed can be uncomfortable, benefits will be realized. Benefits include the opportunity to learn where PSAPs currently reside within the ecosystem, receive insight into where the ecosystem is going from local and national perspectives, and discover how DMA and member PSAPs can best leverage each agencies' strengths to provide a best-in-class solution to serve the constituents and field responders across the DMA region.

A holistic analysis of the findings and recommendations contained in this report has identified opportunities within the DMA region to improve service levels and operations through organic rather than mandated regionalization. Regionalization has the potential to reduce operating costs by improving economies of scale and reducing redundant and duplicate services, equipment, and facilities, including the reduction or elimination of ongoing maintenance and replacement costs.

There are three symbiotic elements of organic regionalization that, based on the findings and recommendations contained in this report, would offer operational efficiencies within the DMA region:

- Physical (facility-based)
- Technology and shared systems
- Policy and operations

The three elements of regionalization are inter-related and may be executed sequentially or concurrently. As more initiatives are deployed within each element, the benefits will be experienced exponentially.
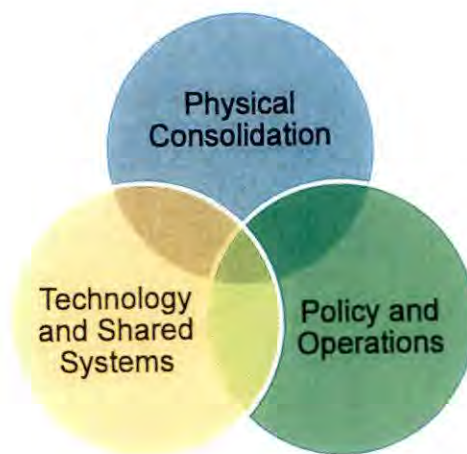
4.1 Organic Regionalization

Regionalization can be defined as two or more communities (or organizations, or agencies) that join together in a formal, mutually-beneficial working relationship to optimize services provided to the customers of their communities (or organizations, or agencies).[26]

This can be achieved inorganically, which occurs when there are outside forces at play (e.g., state mandate such as in Illinois and Ohio), or it can occur organically. Organic regionalization is more natural and evolves out of a voluntary, cooperative effort to improve emergency response, such as in Nebraska and Palm Beach County, Florida, where no mandates exist.

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[26] NASNA - 911 Regionalization - Tools and Information (nasna911.org)

Inorganic regionalization would result from outside forces, such as an unfunded mandate, which stakeholders reported has been attempted three times over the years. It is the consensus of some staff and stakeholders that there may be value in consolidating ahead of an inevitable state mandate; it is unreasonable to expect that surcharge money will be able to keep pace with increasing technology and workforce costs. There also is an assumption that if consolidation is mandated by the State, there will be less funding from the State to support the effort.

A federal study conducted in 2010 by the Communications, Security, Reliability and Interoperability Council (CSRIC)[27] identified five values of consolidation, shown in the figure below; regionalization has the same values. These values not only hold true today, but they are also areas identified in this report where opportunities exist to gain efficiencies and improve services throughout the DMA region. The values highlighted below can be leveraged through organic regionalization in the form of policies and operations, technologies, and facilities.

Figure 6: Values of Organic Regionalization

- Shared Resources – Shared resources include policies, operations, and any other support services (e.g., IT, GIS, administration, HR).
- Elimination of Duplicate Costs – Duplicate costs related to administration, operations, technologies, and facilities may be eliminated through organic regionalization.
- Coordinated Responses – Coordinated responses address joint responses, including automatic and mutual aid, and other shared responses that would be coordinated from the same PSAP. Examples include multi-jurisdictional responses to grass fires, pursuits, and mass casualty incidents, all of which require a coordinated response.
- Greater Interoperability – Interoperability expands with regionalization, enabling the sharing of mission-critical equipment and technologies (e.g., CHE, CAD, radio).
- Effective and Efficient Service – Efficiencies will often occur—and service levels improve—when regionalization is properly executed. Call transfers are often reduced, and situational awareness is improved through regionalization. There are often improvements that can be gained in all functional areas of a PSAP (operations, personnel and workforce, training, performance management, leadership and planning, technology, facilities, and organizational structure).

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[27] WORKING GROUP 1A (fcc.gov)

A key to organic regionalization is recognizing that there are efficiencies to be gained, and then working to establish shared and common practices throughout the DMA region. DMA members—the PSAPs and their respective agencies—must realize the benefits far outweigh any perceived losses.

The following sections outline a vision for a tiered approach that supports organic regionalization of the PSAPs in DMA that includes all three elements.

Tier 1
Voluntary participation in *physical consolidation* of PSAPs into renovated BPD facility

Tier 2 -
Participation in regionwide enhancements in *technology and shared systems*

Tier 3 -
Participation in regionwide consolidation of *policies and operating procedures*
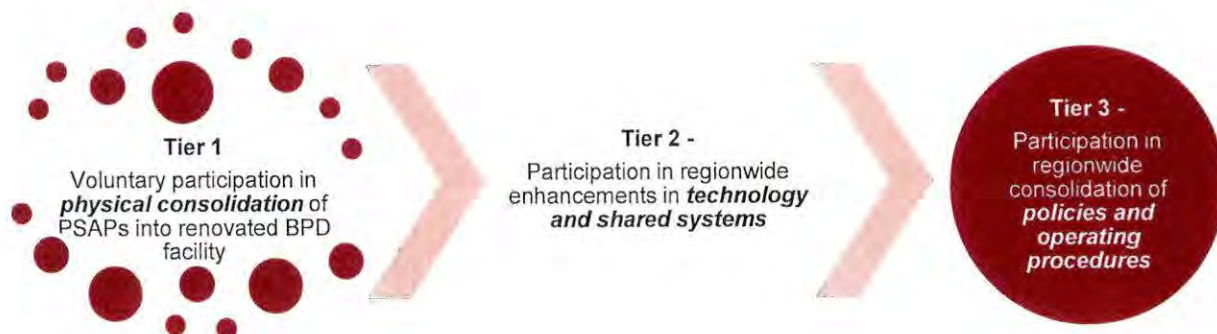
Figure 7: Regionalization Tiered Approach

Because there is much to consider, until such time that DMA members were to actually vote on whether or not to participate in the first tier—physical consolidation—and the impact on those that elect tier 2 or tier 3, exactly how many and which agencies would elect to participate in the first tier, which has a direct impact on staffing and costs, MCP provided a best-case scenario if all agencies elected to participate in physical consolidation, which at the end state would mean that tier 2 and tier 3 also would be accomplished. As a result, Sections 4.3 and 4.4 only provide a high-level view and discussion of the possibilities.

4.2 Physical (Facilities-Based) Regionalization (Tier 1)

Based on our assessment of the current environment and information previously presented in this report, MCP recommends physical regionalization under a single governance structure for all PSAPs operating under DMA. Given the need for a redundant backup location, the DCD equipment and workstations should remain intact for a hot backup and training facility or a suitable alternate location should be identified.

Under normal circumstances, status quo is identified as an option. However, due to the staffing situation in the region (83% of the PSAPs in DMA are single-seat operations), status quo is not a viable consideration. Likewise, one also would expect to see colocation as an option. However, simply colocating the PSAPs does not provide relief regarding the recruiting, staffing, and call transfers, and flat organizational structure challenges that, if improved, would enhance operations and reduce liability exposure.

The reasons below further support a physical consolidation of the PSAPs operating in the DMA region:

- Reduces 911 call transfers[28]
- Eliminates occurrences where one employee is on duty at a time
- Eliminates occurrences where unqualified personnel are working in the PSAP (e.g., sworn personnel without adequate training)
- Eliminates call workflows that inherently include two or more 911 call transfers[29]
- Provides zero-minute response to most fire, and EMS calls for service[30]
- Improves staffing to provide enhanced coverage 24 x 7
- Reduces staffing shortages
- Expands the workspace in the PSAP
- Reduces operational complexity of the combined call-taker/dispatcher position, which can improve training completion statistics
- Minimizes budget competition between field and dispatch personnel
- Eliminates duplicative support services
- Decreases the number of points of infiltration for cybersecurity risks
- Eliminates cost duplication to operate the 12 PSAPs

- Eliminates workforce competition between the PSAPs
- Leverages investments in common systems (911 platform) and interfaces
- Provides a single complaint resolution workflow
- Provides a shared QA/QI program
- Assures more consistent and effective service delivery
- Provides greater opportunities for interagency response, backup, situational awareness, and data sharing
- Leads to operational and capital cost savings
- Provides for improved COOP and DR plans
- Improves radio communications and interoperability among responders
- Standardizes processes to promote community education trust and support
- Adheres to training and QA requirements to improve service and reduce mistakes
- Adheres to Michigan training requirements for funding opportunities

While maintaining the status quo or colocating PSAPs would enable the dispatch centers to avoid the challenges associated with merging operations and HR practices with those of another PSAP, neither option inherently results in improved call-transfer times or staffing efficiencies. Some would argue that the current PSAPs' municipalities should continue to have control over their operations to ensure that any decisions made are in the best interests of the community and first responder agencies the PSAP serves. However, this argument is without merit as municipalities having dispatch services provided by an entity

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[28] Transfers cannot be eliminated unless all agencies join the consolidation effort.

[29] MCP has found that eliminating double transfers is a best practice. This finding is supported by states such as Florida that have such requirements incorporated into their state 911 plans. Florida E-911 Plan, Section 3.2.3(B) says the following about double transfers: "With a transferred call, the caller must never be procedurally required to talk with more than two people: the primary PSAP 911 call taker and the call taker at the remote agency. There shall be no inherent double transfers."

[30] "Pre-Arrival Instructions (or PAI's) [sic] provide potentially life-saving, scripted instructions for callers trapped in a sinking vehicle or structure fire, water rescue incidents, a person who is on fire, a caller who is in danger but not trapped, or a situation where there is a HAZMAT danger. Collectively, these protocols and instructions are referred to as Dispatch Life Support Instructions. Dispatch Life Support Instructions make it possible for properly trained call takers to provide a Zero Minute Response™." Priority Dispatch, 2020. https://prioritydispatch.net/emd-cardset/ Zero-minute response cannot be fully realized unless dispatch agencies in the county join the effort.

other than itself already has proven successful, as evidenced by the success of the existing DCD consortium.

Further, a common argument for maintaining status quo or colocation is that PSAP personnel are familiar with the geography and the first responders in their jurisdictions, and call-takers and dispatchers work in close proximity to each other, which facilitates the flow of information between the public and first responders. However, the region will continue to experience delays in responding to emergency incidents due to transferring calls for service between PSAPs. Maintaining the status quo or colocation does not improve interagency communication. Mutual-aid response is more difficult to coordinate and information silos will continue to exist, reducing the information that is shared between the PSAPs.

> It is important to remember that true success in a consolidated environment, which involves bringing people together in a new organizational structure, can only be achieved when members establish trust, engage in constructive conflict, are committed to the success of the organization, hold each other accountable, and are focused on the results.

4.2.1 Governance Options

Successful management of a regional model involving more than one PSAP will hinge on the development of a governance structure within a legal framework for allocating control, decision-making responsibility, and liability among stakeholders. Establishing governance can be the most challenging aspect of regionalized operations, but it does not need to be if approached methodically, as follows:

- Progress logically—agree to the overarching goals and objectives
- Disparate stakeholders must agree to an overall decision-making structure
- Understand/accept the issue of local control and service delivery
- Document all requirements so that the challenges of one locality do not overshadow the collective needs of the region
- Work toward mutually beneficial solutions
- Think creatively and allow ideas to evolve via a deliberative, consensual process

The regionalization options considered in this study lend themselves to one of two primary governance models. The first is a Contract for Services model in which one stakeholder, presumably the largest, assumes all financial and operational responsibility for the regional PSAP, and the other agencies negotiate either standard or individualized service contracts with the host agency. A Contract for Services model is most effective when one stakeholder is significantly larger than the other stakeholders and is able to assume the financial liability for operations. In this case, the large agency typically has appropriate facilities, management, and operational plans in place and can expand and modify them to serve additional customers.

The second option is for the involved agencies to leverage the DCC/DMA governance structure that is already established as a legal entity and continue to maintain joint control of assets and operations. In this

option, even if operations are located at the facilities of two of the participating PSAPs, the participants share the financial and operational responsibility for the regional PSAP.

MCP researched a variety of governance structures that other PSAPs have implemented and leveraged the knowledge of DMA to identify several options, each with strengths and challenges, that would provide the level of operational oversight to serve the regionalization efforts, as well as set the path for future agencies to participate. Provided below is a description of each model deemed feasible, along with a table highlighting the strengths and opportunities and challenges and risks, of each model.

4.2.1.1 Host Agency Operating the PSAP with Contracting Services

Participating entities are part of an existing public safety organizational structure (e.g., law enforcement, fire, or EMS agency). While the host agency absorbs and operates the contracting agency's PSAP services, the contracting agency often appoints a point of contact within the reporting structure—such as the agency chief or a contract administrator or liaison—to provide accountability and promote collaboration with the host agency. PSAP management typically reports as part of the current organizational structure under the authority of the hosting agency.

Table 5: Host Agency with Contracted Services

Strengths and Opportunities	Challenges and Risks
• The host agency provides leadership and management from within its current staff, thereby eliminating the time and new funding needed to hire additional leadership staff.	• During any regionalization, there is a concern associated with the loss of direct control over PSAP personnel and dispatch services.
• The host agency has established administrative, operational, and technical resources within the county/municipal/public safety entity structure. Examples include HR, training, facilities maintenance, and network support.	• A perception can exist that the host agency does not view the needs of the contracting agency with the same importance, and that the contracting agency receives a lesser level of service than the host agency.
• Buy-in for regionalization may be better received when the suggested host PSAP already is dispatching for the disciplines served by the contracting agencies. Buy-in can be further enhanced when the contracting agency also is housed within the same type of agency (e.g., police department to police department rather than fire department to police department, or even police department to sheriff's office).	• Although the current political environment may be conducive to a contract arrangement, changes in leadership and political agendas over time can create challenges regarding oversight and service level expectations. Such an environment can strain relationships and exacerbate existing stressors. To mitigate this risk for all parties, a detailed governance document is required to protect all parties.

4.2.1.2 Joint Powers Agreement (JPA) with Advisory Board Oversight

Similar to the contracting structure described above, participating entities are part of an existing public safety organizational structure (e.g., law enforcement, fire, EMS, or emergency management agency). Although this can be an attractive option in a variety of scenarios, for this model there must be a host entity that is geopolitically neutral and capable of administering the regional combined PSAP with DMA oversight. This model advances governance beyond one-to-one contracts to develop partnerships within a governance structure. Such a structure leverages a standardized governance agreement that promotes collaboration by including representatives from each participating agency. However, without that neutral host entity, this model is not viable in the long term.

In this structure, PSAP management typically reports as part of the current organizational structure under the authority of the hosting entity, and receives advice and guidance from an advisory board—in this case, DMA. Participating agencies commit to appointing representatives who will serve on the advisory board, which traditionally is composed of public safety officials concerned with day-to-day operations of the PSAP. The advisory board works closely with the PSAP director to establish operational procedures. Typically, the host entity is not bound by the decisions of the advisory board, which does not administer supervisory authority over the PSAP director.

Table 6: JPA with Advisory Board

Strengths and Opportunities	Challenges and Risks
• PSAP management has a clear reporting structure within the host agency.	• During any regional model, there is a concern associated with the loss of direct control over PSAP personnel and dispatch services. This challenge can be mitigated by strong, positive communications between the advisory board and the PSAP director.
• The hosting PSAP has established administrative, operational, and technical resources within the county/municipal/public safety entity structure. Examples include HR, training, facilities maintenance, and network support.	• Leadership personnel will require technical and operational skills specific to the PSAP environment. Without adequate succession planning, turnover in leadership positions can create a significant risk.
• This model includes an advisory board comprised of public safety officials concerned with the day-to-day operations of the PSAP. The advisory board can include municipal and community representatives if desired. This board has advisory input only.	• Even though the board is only advisory, the risk still exists that the PSAP can be impacted by political agendas and changes in direction that result from a lack of participation and turnover in the advisory board.
• The PSAP director has the support and advice of an advisory board to remove roadblocks and champion efforts. The advisory board can assist	

Strengths and Opportunities	Challenges and Risks
with complaints and disputes arising from QA, and make QI recommendations.	
• This structure mitigates the risks and challenges associated with one-to-one contracts with individual participating agencies, as they become part of the consolidated organization.	
• This model provides the opportunity to formalize governance documents and pricing structures that are predictive and equitable with future participating agencies. For existing contracts, the opportunity exists to renegotiate or amend the contracts to bring them into the new structure.	

4.2.1.3 Separate Entity as a Regional PSAP with Advisory Board

This model removes the governance of the consolidated PSAP from any other governmental structure and creates an independent agency. The regional consolidated PSAP is an independent organization completely independent from any law enforcement, fire, or EMS agency it serves. A civilian director typically manages a regional PSAP. The director typically reports to a county or regional 911 or emergency services board that includes representation from the participating agencies. DMA is considered such a board with participating agencies committing to appointing representatives who serve on the board. DMA is composed of public safety officials concerned with day-to-day operations of the PSAP. The advisory board typically possesses the authority to determine the funding strategy, organizational structure, and hiring policies, and approve significant changes to operational procedures.

Table 7: Regional PSAP with Advisory Board

Strengths and Opportunities	Challenges and Risks
• The independent organization provides the director with the opportunity to provide equitable service to all participating agencies by best managing PSAP resources. This can mitigate the perception that the host agency is biased concerning the participating agencies.	• During any regionalization, there is a concern associated with the loss of direct control over PSAP personnel and dispatch services.
• This model creates a deeper career path for PSAP staff.	• A carefully drafted governance document is critical to avoid a convoluted reporting structure. It is important that a clear chain of command exists so that the director can effectively manage the PSAP.

Strengths and Opportunities	Challenges and Risks
• As an independent entity with its own budget, there is total organizational autonomy and mitigation of competing interests.	• Although the current political environment may be conducive to this model, changes in leadership and political agendas over time can create challenges regarding oversight and service level expectations. This environment can strain relationships and exacerbate existing stressors. To mitigate this risk for all parties, a detailed governance document is required to protect all parties.
• This model provides the opportunity to develop a standardized governance agreement that promotes equality in operational and pricing structures for existing and future agencies participating in the regional PSAP.	• There is a risk that participating agencies currently under a contract agreement would not want to cancel their current contract in favor of the new governance agreement.
	• As a completely separate entity, real and intangible costs for administrative, operational, and technical resources—such as HR, training, facilities and their maintenance, and network support—may be perceived to be higher. Funding can be a significant risk if any participating agency moves to deconsolidate.
	• Leadership personnel will require technical and operational skills specific to the PSAP environment. Without adequate succession planning, turnover in leadership positions can create a significant risk.

There are many local, regional, and national changes facing the 911 community, which are driving the consolidation of PSAPs and governance models that could prove successful for the DMA regionalization effort. As MCP evaluated the ideal solution for the DMA PSAPs, a governance structure and organizational structure that builds on the existing structure of the DCC and DMA is the ideal scenario and provides the most opportunity to improve emergency response in the region. DCC would have fiduciary responsibility, provide overhead services and support, and would be the employer of record for the new PSAP.

Prior to any regionalization, governance should be established to ensure that matters regarding policies and procedures are established, enacted, and met. MCP recommends that DMA agencies establish an independent entity with DCC as the fiduciary. An advisory board consisting of the law enforcement, fire, and EMS agencies would act in an advisory capacity to the board of directors and staff.

DMA is a public safety oversight body not bound by geopolitical constraints. As such, any challenges associated with establishing equitable salaries and benefits among the PSAPs should be able to be

negotiated without municipal or county politics delaying the project. With representation from the primary agencies on the board, operational issues also should be readily resolved. DMA would have to establish resources that can address HR policies and administrative services. This is another area where DCC can provide support, as it employs fulltime HR staff and it would be the employer of record for the independent agency.

4.2.1.4 Agreements

The governance document that exists today should be modified or replaced with guidance from legal counsel to include a new description of the authority, purpose, outcomes, operating principles, membership, roles and responsibilities, and management by which DMA successfully will serve and provide direction. It is anticipated that DMA would continue to handle executive-level decisions—such as approvals of the budget and personnel promotions—for the lifespan of the organization.

In addition to the governing agreement, MCP recommends developing a standardized intergovernmental partnership agreement. Such an agreement essentially lays the foundation for each agency to participate in DMA. The existing agreements can provide valuable guidance to developing this document. MCP recommends that particular attention be given to the following in the intergovernmental partnership agreement:

- Purpose of the agreement
- Baseline for terminology and definitions
- Scope of services
- Responsibilities and expectations of all participating communities, including the host agency
- Pricing structure to include initial regionalization costs and predictive ongoing fees for services
- Onboarding and integration planning, including the outlook for existing communications personnel
- Performance standards and reporting
- Change management
- Authority of host PSAP to manage financial and personnel matters
- Terms and general provisions

After drafting the recommended governance documents, next steps include defining the funding model and detailing a pricing structure. The latter should include the equitable division of initial regionalization costs and/or ongoing fees for services that are representative of the liability of the host agency and predictive of the expected workload of the consolidating community.

4.2.1.5 Organizational and Operational Structure

As an end state, MCP recommends full regionalization under a single organizational and operational structure that will provide efficiencies, improve staffing, and reduce exposure to risk for each dispatch center, as well as the region as a whole. It is likely that full regionalization will continue to be economically attractive even after the consideration of constructing or modifying facilities to accommodate the configuration.

Organizational Structure

Although familiarity with geography and first responders initially may be reduced, full regionalization provides opportunities for call-takers and dispatchers to work in close proximity, which facilitates the flow of information between the public and first responders. The PSAP should have 49 telecommunicator and working supervisor positions. Cross-training between call-taking and dispatching would be expected to continue in a consolidated environment.
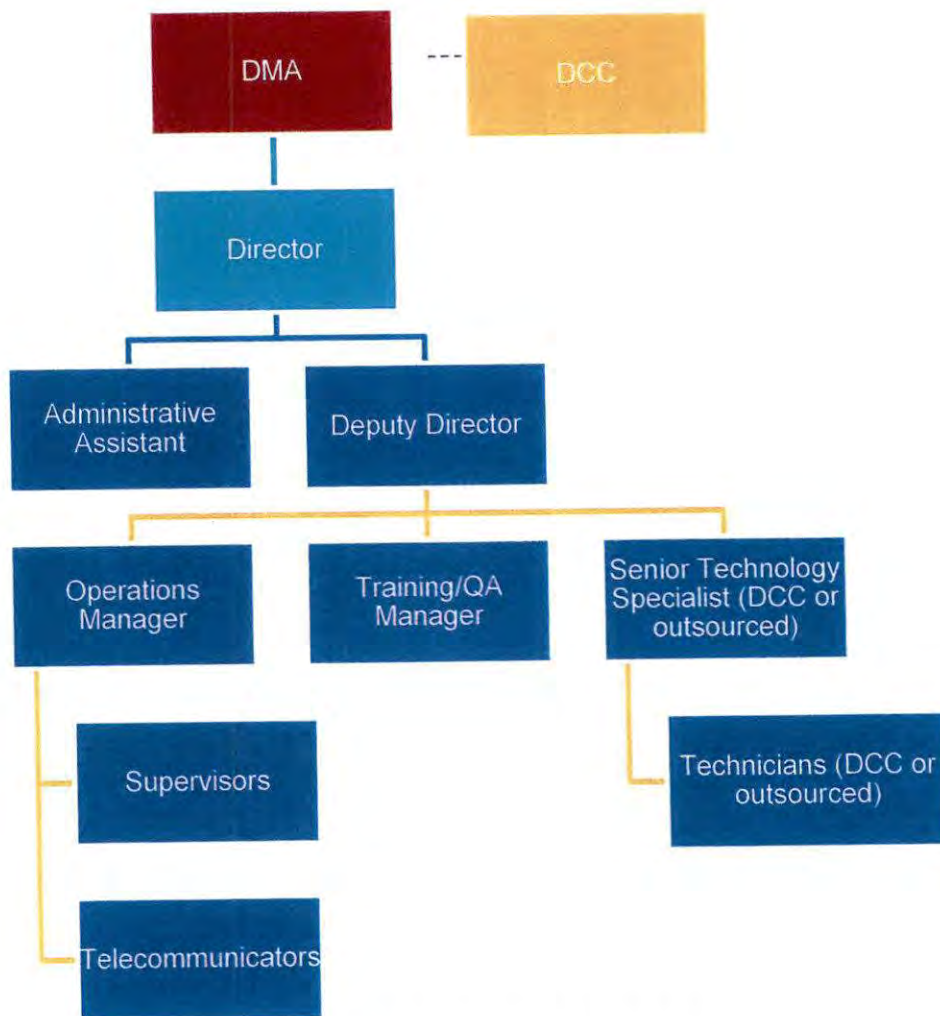
Figure 8: Conceptual Organizational Structure

With the myriad of changes likely on the horizon for public safety communications, including the advancement of NG9-1-1 and the associated operational challenges, oversight for the PSAP ideally should be a full-time position dedicated solely to the entire operation. One director assisted by a deputy director, an operations manager, and a training/QA manager, and working shift supervisors will be essential. The recommended organizational structure for the total organization is as follows:

- Communications Director (1)
  - Reports to the intergovernmental board
  - Responsible for the overall operations of DMA regional dispatch, to include personnel, financial, and policies and procedures

- Deputy Director (1)
  - Reports to the director
  - Responsible for oversight of operations and technology

- Operations Manager (1)
  - Reports to the deputy director
  - Responsible for operations and employee management

- Training/QA Manager (1)
  - Reports to the deputy director
  - Responsible for training, QA, and other performance management

- Senior Technology Specialist (1) or Contractual IT Support
  - Reports to the deputy director
  - Responsible for all technology within the DMA regional dispatch, and for keeping it current with national PSAP standards

- Administrative Assistant (1)
  - Reports to the director
  - Depending on the final agreement and arrangement with DCC, responsibilities could include financial and payroll accounting, general office management, and greeting guests to the facility

- Shift Supervisor (3)
  - Reports to the operations manager
  - One assigned to each of shift
  - Responsible for each telecommunicator on their shift. They also would be responsible for overall PSAP activities including, at a minimum: supporting scheduling, training, QA, policies/procedures, public education, and Law Enforcement Information Network (LEIN) requirements.
  - Ideally, and in an 8-hour rotation scenario, there would be three "working" supervisors that are assigned to each PSAP and are part of the telecommunicator count. In a 12-hour rotation scenario, four would be needed. Telecommunicators may fill a "lead" position when supervisors are on leave. It is reasonable to assume there would be a wage difference between leads and telecommunicators or a stipend.

- Full-time Telecommunicators (46)
  - Reports to their assigned shift supervisor
  - All telecommunicators are cross-trained to function in all positions in both PSAPs.

During the implementation phase of the project, MCP recommends using an employee integration crosswalk (EIC) tool (Appendix C) to guide decisions relating to the variety of HR elements. At a minimum these include:

- Pay-scale disparities
- Employee benefits packages
- Paid time-off disparities
- Seniority issues
- Job titles and job descriptions
- Retirement packages
- Union contracts
- Automatic employment or rehire of existing employees

Given the number of collective bargaining groups in the region, employee integration will be a key part of an effective and comprehensive implementation plan, with much needed support from labor counsel and human resources.

4.2.2 Facilities

Finding a suitable facility to house a consolidated PSAP is a considerable capital investment. Key considerations for a consolidated PSAP facility are:

- Cost to build or retrofit an existing facility
- Access to adequate power and telecommunications infrastructures to support a PSAP with a robust equipment room and redundant systems
- Reliable water supply and sewer lines
- No site or subsurface issues that would compromise structural integrity
- Sized appropriately for current staff and future growth as well as compliant with the Americans with Disabilities Act (ADA)
- Adequate distance from environmental hazards such as flooding and hazardous materials
- Ability to provide physical security and a hardened facility
- Proximity to parking, food, medical, and governmental services, employees, and support/client agencies who would visit the facility regularly

As previously mentioned, when reviewing existing PSAPs in the DMA region, although they may be capable of supporting their current dispatch operations and related functions, the PSAPs do not have the space to host a larger, regional center. While there is a backup plan in place to reroute 911 calls, many PSAPs do not have sufficient backup centers identified for full operations during extended periods if their primary PSAP is compromised. Fortunately, there is one existing viable location for a larger primary PSAP and a potential location for a backup site.

4.2.2.1 Primary Regional PSAP

While there are several details to be worked through, the BPD facility, as offered by the chief of police, presents an opportunity for a regional center. There is existing unused space within the police facility that

can be renovated to accommodate a regional PSAP. The existing multipurpose room offers 1,080 square feet of available space, while the Records Bureau offers 1,379.5 square feet of available space. In addition, there is raw land adjacent to BPD that could be used to expand the facility if needed. Additional space will be needed for the administrative offices. It may be necessary for BPD's existing configuration to be modified or the building expanded to the south. The space anticipated for the new PSAP would be approximately 1,800 square feet, not including office and support spaces.

4.2.2.2 Backup Facility

If the same remains available, the existing DCD facility in Wyandotte is an ideal facility for a backup regional center using the existing technology and workstations already in place. It is assumed that there would be costs associated with supporting this hot backup location, which may be cost-prohibitive. A minimum of eight workstations would be needed to accommodate call-taking, dispatching, and one supervisor. Alternate backup sites in the region may be available for DMA including, but not limited to:

- Versatile mobile backup scenario that would enable staff to standup a backup location, if necessary, with remote access to phones, CAD, and radios
- West Jefferson Fire Station (also knowns as Brownstown Fire Station #2)

As a virtual solution, PFNNGS go kits (PSAP in a box) are available for purchase at approximately $8,000 to $9,000 or are available for deployment at no cost on an as-needed basis for emergency or pre-planned events. The kits are described as follows:

- MEVO-IP anywhere kits are self-contained.
- Each kit has four phones, a router, and wireless 10-megabit ethernet card and work on long-term evolution (LTE).
- Units connect to the FirstNet network, Verizon, T-Mobile and AT&T Mobility.
- The kits are compatible with the 911 network and can answer administrative lines if desired.

4.2.3 Rough Order of Magnitude

Rough order of magnitude (ROM) pricing for the purchase of land or an existing building is not possible due to the varying property values throughout the state. Similarly, identifying lease costs is problematic for the same reasons. Without a formal programming study, it would be difficult to estimate the exact cost of a new or renovated facility suitable for a second consolidated operation; however, some high-level space and cost considerations can be offered; see Appendix D, Space Estimates.

4.2.4 Architectural Costs

Whether building or remodeling, architectural services include programming, design drawings, project management, bidding, and selection of a general contractor, construction management, quality control, and final acceptance management. MCP can help with a more detailed programming study, assistance with public safety requirements during design, vendor coordination, and the migration strategy.

ROM pricing for architectural costs including services ranging from programming through final acceptance is generally 10% of the building cost; this can be higher, however, based on the anticipated complexity of the design and systems.

4.2.5 Workstation Estimates

To accommodate the requisite staff in the new PSAP and provide for overflow/training positions, 12 physical workstations are recommended, as shown below.

- Supervisor – 1
- Law enforcement dispatch – 4
- Fire/EMS dispatch – 2
- Call-taker, relief, or backup dispatch – 3
- Overflow/Training – 2

4.2.6 Critical Facilities Design Considerations

Critical facilities, at the most basic level, refer to "all manmade structures or other improvements that, because of their function, size, service area, or uniqueness, have the potential to cause serious bodily harm, extensive property damage, or disruption of vital socioeconomic activities if they are destroyed, damaged, or if their functionality is impaired."[31] Fire and police departments, PSAPs, and emergency operations centers (EOCs) are typically described as such a facility as they are necessary for continued protection of the health and safety of the community. PSAPs and EOCs are to be the last building standing; sometimes, fire and police departments are built to similar standards. Disruption of these facilities and the services provided could be impactful to the community. Various local, state, and federal codes apply to critical facilities and impact construction costs. Hazards must also be considered. Appendix E incudes a list of critical facilities considerations and related hazards.

4.2.7 Facility Maintenance

In addition to the capital cost of the facility and systems, maintenance and recurring costs (e.g., utilities, furniture) should be factored into short- and long-range financial planning. Consider how costs will be shared among all participants, including the host agency.

4.2.8 Furniture

Workstation furniture constitutes the workspace at which telecommunicators operate while on duty. All components needed to perform their tasks are in front of them, and proper equipment and design are important, given the nature of the work telecommunicators perform and the amount of time they spend at the workstation.

These workstations must be designed to deliver many years of use. The workstation platforms must be built to accommodate multiple monitors, monitor stands, and keyboards. Seating comfort with the ability to

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[31] "Design Guide for Improving Critical Facility Safety from Flooding and High Winds." (2007), FEMA, page 1-2. https://www.fema.gov/sites/default/files/2020-08/fema543_design_guide_complete.pdf

stand and complete tasks with an ergonomic workstation is essential to decreasing fatigue during the long work hours on a shift. Ergonomically and specially designed chairs with adjustable lumbar support that are capable of 24-hour intensive use are particularly important. Workstations may be designed with electric and/or manual lifts to enable the telecommunicator to sit in place and view the work area without eye strain and neck soreness. Because multiple individuals use a workspace during different shifts, the telecommunicator's ability to adjust the workstation is imperative to accommodate each employee's physical characteristics.

Workstations typically are built to last for 10 to 15 years. When specifying workstations, the PSAP should consider the possibility of future expansion; if it expands, it should have the ability to move workstations without needing the contractor to return to break down the workstation and move it. Workstations require little maintenance—proper cleaning of workstations, and proper use, will allow for many years of service and keep them in like-new condition.

Pricing for telecommunicator workstations can vary depending on the selected manufacturer, chosen options, competitive procurement, etc. The price per position may decrease with larger numbers of consoles due to the volume discounts provided by some manufacturers.

ROM pricing for workstation furniture ranges between $25,000 and $28,000 per position depending on features, plus $1,000 to $2,400 per chair.

4.2.9   Funding and Cost-Sharing

Identifying a method of funding for a consolidated PSAP is a complex issue. A key goal of the agencies involved in this study should be the fair and equitable funding of services across the jurisdictions.

> Consolidations do not typically result in an immediate cost-savings; however, consolidation will result in cost and operational efficiencies.

Funding Sources

In a consolidation model, it is anticipated that the two primary revenue sources would be the 911 funding that is received from the state and contributions from member agencies. The 911 revenue is approximately $1.8 million annually and the remainder of the expenses would be shared by the agencies.

There may be an opportunity to increase the surcharge in Wayne County in the future and, based on the findings of this report, there is justification to increase the tax in order to cover the expenses of operating a regional PSAP; however, it remains unclear if and when that would happen, as all PSAPs in Wayne County would have to agree to place it on the ballot at the same time.

Cost-Sharing Models

There would be a need to establish a method for cost-sharing if external funding sources do not cover the operational costs. There are numerous funding models that are prevalent across the country and any of them can be combined as a hybrid. MCP has included a list of common cost-sharing models (Appendix F) and has identified two potential funding models currently used nationwide for DMA to consider. The

method selected should provide a level of predictability and fairness upon which the jurisdictions can agree.

Emergency communications services generate a wealth of data, which includes both activity- and resource-based information, such as the number of incidents, incoming calls processed, radio transmissions, personnel, expenses, and other valuable information that may be documented. This data allows agencies to determine an average cost per activity or resource. The following sections describe methods commonly used to allocate costs among jurisdictions participating in a consolidated PSAP.

The projected budget is based on a staffing complement of 55 full-time employees (see Appendix G for additional staffing information). Budgets are based on a telecommunicator salary of $53,442 (Brownstown's top tier wage) and a 40% placeholder for benefits. To avoid compression, MCP used 10% salary differentials between positions: director, deputy director, operations manager, training/QA manager, and supervisor. A 5% salary differential was used between supervisor and telecommunicator positions. Although a placeholder was included for a senior technology specialist, this position could be replaced with contractual services or other outside resource (e.g., DCC). Budgets and cost-sharing models should be adjusted accordingly during the implementation plan phase of the project.

Table 8: Projected Salaries and Benefits in Consolidated Scenario

Position	Baseline Salary	Benefits	Combined	Total Salary and Benefits
Director - 1	$74,688	$29,875	$104,563	$104,563
Deputy Director – 1	$67,898	$27,159	$95,057	$95,057
Operations Manager – 1	$61,726	$24,690	$86,416	$86,416
Training/QA Manager – 1	$61,726	$24,690	$86,416	$86,416
Senior Technology Specialist – 1	$50,000	$20,000	$70,000	$70,000
Supervisors – 3	$56,114	$22,446	$78,560	$235,680
Telecommunicators – 46	$53,442	$21,377	$74,819	$3,441,674
Administrative Assistant – 1	$38,000	$15,200	$53,200	$53,200
			TOTAL	$4,173,006

Budget projections are based on personnel costs, which are projected to be 70.65% of the operating budget.

This projected budget does not include the capital outlay to build or renovate a new facility, as this is strictly the operational costs. As noted in Section 4.2.3, a programming study would be necessary to determine the costs of a new facility.

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It is important to understand that the budget projections are simply estimates; determining what positions will be staffed and a more exact operating budget is a critical component of a consolidation implementation plan. MCP does not recommend salary reductions for any employee transitioning to similar positions. In a consolidated scenario, employees should be placed at or above the highest median salary for a best-in-class scenario. Maintaining adequate capital reserves for future spending and unforeseen expenses should be considered.

Table 9: DMA Combined Projected Budget

Metric	Cost
Personnel Costs: Including actual reported costs for telecommunicator, administrative and management salaries; overtime and benefits (numbers represent proposed staffing)	$4,173,006
Overhead and Other Costs – 10%	$417,301
Other Costs – 5%	$208,650
911 Expenses – FY2022	$1,108,000
Gross Operating Expenses	$5,906,957
911 Revenue	$1,800,000
Net Operating Expenses	$4,106,957

Activity-Based Cost Sharing Model

Cost assessment based upon activity is a common method that is used to fund consolidated PSAPs. Routine PSAP activities that may be tracked and documented for use in this approach include:

- Incoming 911 calls
- Incoming 911 and 10-digit calls
- Incidents dispatched
- Field-originated calls
- Radio transmissions

Activity-based costs can be derived using two methods. The first involves tracking the activity volume associated with each member agency. The entity is assessed the cost for provisioning specific services based upon actual usage.

The second method involves averaging the volume of an activity across all participating jurisdictions or agencies. For example, PSAPs document the number of 911 calls received annually. The annual operating

budget can be divided by the number of 911 calls to derive a per-call cost. Each entity then would contribute a share of the cost based upon the average volume of overall system usage.

MCP used a combination of law enforcement, fire, and EMS incidents to determine activity levels for this cost-sharing example. This model may not account for the length and complexity of calls, multi-discipline events, self-initiated activities, and seasonal initiatives. As a result, which is problematic for this approach for cost-sharing, there is a risk of artificial inflation of incident numbers along with the resources deployed and time consumed not being reflected in this calculation. The table below includes cost estimates that are broken out by entity. Calls for service include all calls dispatched by an agency (law enforcement, fire, and EMS).

Table 10: Activity-Based Cost Formula

Agency	Law and Fire/EMS Incidents Dispatched	Percentage of Total Incidents Dispatched[32]	Total Cost per Agency[33]	Current PSAP Operating Expenses or Dispatch Fees[34]	Difference
This approach is problematic for cost-sharing as there is a risk of artificial inflation of incident numbers along with the resources deployed and time consumed not being reflected in this calculation.					
Allen Park PD	17,706	5.70%	$234,124	$208,746	+$73,747
Allen Park FD	3,658	1.18%	$48,369		
Brownstown PD	23,441	7.55%	$309,957	$494,602	-$135,006
Brownstown FD	3,754	1.21%	$49,639		
Ecorse PD	5,532	1.78%	$73,149	$253,867	-$165,009
Ecorse FD	1,188	0.38%	$15,709		
Flat Rock PD	24,279	7.82%	$321,038	$390,081	-$54,419
Flat Rock FD	1,106	0.36%	$14,624		
Gibraltar PD	4,638	1.49%	$61,328	$236,612	-$168,249
Gibraltar FD	532	0.17%	$7,035		
Grosse Ile	6,859	2.21%	$90,696	$600,893	-$502,448

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[32] Percentages are rounded.
[33] Figures are rounded.
[34]The current operating expenses for DCD members (Allen Park, Lincoln Park, Southgate, and Wyandotte) are the FY2022 dispatch fees and the SINC fees. See Appendix B for more detail.

Agency	Law and Fire/EMS Incidents Dispatched	Percentage of Total Incidents Dispatched[32]	Total Cost per Agency[33]	Current PSAP Operating Expenses or Dispatch Fees[34]	Difference
This approach is problematic for cost-sharing as there is a risk of artificial inflation of incident numbers along with the resources deployed and time consumed not being reflected in this calculation.					
Grosse Ile	586	0.19%	$7,749		
Lincoln Park	35,074	11.29%	$463,779	$360,274	+$192,270
Lincoln Park	6,713	2.16%	$88,765		
River Rouge	11,474	3.69%	$151,719	$489,867	-$322,307
River Rouge	1,198	0.39%	$15,841		
Riverview PD	9,914	3.19%	$131,092	$246,620	-$83,582
Riverview FD	2,416	0.78%	$31,946		
Rockwood PD	5,633	1.81%	$74,484	$170,289	-$90,370
Rockwood FD	411	0.13%	$5,435		
Southgate PD	23,368	7.52%	$308,992	$260,346	+$113,253
Southgate FD	4,886	1.57%	$64,607		
Taylor PD	33,777	10.87%	$446,629	$1,604,980	-$1,081,394
Taylor FD	5,820	1.87%	$76,957		
Trenton PD	14,355	4.62%	$189,814	$381,895	-$171,440
Trenton FD	1,561	0.50%	$20,641		
Woodhaven PD	29,144	9.38%	$385,367	$507,890	-$77,539
Woodhaven FD	3,402	1.10%	$44,984		
Wyandotte PD	25,380	8.17%	$335,596	$229,276	+143,344
Wyandotte FD	2,800	0.90%	$37,024		
Total	**310,595**	**100%**	**$4,107,089[35]**	**$6,436,238**	**-$2,329,149**

[35] Figures are rounded, which accounts for the difference in projected budget.

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Resources-Based Cost Sharing Model

This method is based upon the number of public safety personnel resources and the assumption that resources are aligned closely with activity and demands on the communication system. Resource-based shared-cost models may include a maintenance-of-effort (MOE) component that factors recurring overhead and capital costs into the calculations. Resources-based calculations also may include other resources, such as field responders, apparatus, and fire stations or a hybrid of any combination of resources.

To calculate the MOE component, each agency contributes an equal portion of the operating budget based upon a set percentage contribution. This model offers simplicity and the most equitable and predictive distribution of recurring and other capital costs. The governing entity must determine the basis of the cost allocation like the activity-based method. There are two sources to develop a resource-based funding model:

- A shared-funding model that starts with best-in-class salary and benefits of the participating communities' current full-time employees at the time of consolidation, which is then coupled with additional overhead and other costs, such as overtime, use of technical staff and administrative staff, equipment refreshes, etc.

- A model based upon the number of subscriber units (portable, mobile radios, and consoles).

For illustrative purposes, MCP included a resource-based funding model using the same baseline budget as described above in the activity-based model and 55 full-time employees. Full-time employee allocation is based on the law enforcement and fire department's share of the workload (Table 10). The table below outlines how the cost per employee is calculated based on the baseline budget (see Table 9).

Table 11: Resource Model Cost per Full-time Employee Calculation

Entity	Full-time Employees	Cost per Agency	Current PSAP Expenses	Difference
Allen Park	5	$373,360	$208,746	+$164,614
Brownstown	4	$298,688	$494,602	-$195,914
Ecorse	1	$74,672	$253,867	-$179,195
Flat Rock	2	$149,344	$390,081	-$240,737
Gibraltar	1	$74,672	$236,612	-$161,940
Grosse Ile	1	$74,672	$600,893	-$526,221
Lincoln Park	8	$597,376	$360,274	+$237,102
River Rouge	3	$224,016	$489,867	-$265,851

Entity	Full-time Employees	Cost per Agency	Current PSAP Expenses	Difference
Riverview	2	$149,344	$246,620	-$97,276
Rockwood	1	$74,672	$170,289	-$95,617
Southgate	6	$448,032	$260,346	+$187,686
Taylor	10	$746,720	$1,604,980	-$858,260
Trenton	3	$224,016	$381,895	-$157,879
Woodhaven	2	$149,344	$507,890	-$358,546
Wyandotte	6	$448,032	$229,276	+$218,756
Totals	**55**	**$4,106,960[36]**	**$6,436,238**	**-$2,329,278**
Cost per full-time employee		$74,672		

In either cost-sharing scenario, there is a **_potential reduction_** in operating costs of $2.3 million annually for the entire region, which provides an opportunity to maintain a more efficient, robust, and stable organization.

There are a numerous cost-sharing models that can be explored during implementation planning. For example, there are hybrid models that could include equitable distribution of operational expenses that would mitigate some of the cost increases projected for certain agencies. There are models that can more evenly distribute the regional cost reduction that would occur through consolidation.

Initial Impact Costs

Besides recurring overhead and capital costs (facility and radio), each consolidation bears numerous one-time costs related to the initial consolidation, including but not limited to the following:

- Consoles/Furniture – moving and/or purchasing new
- Relocating equipment from existing PSAPs to new
- Moving circuits and network modifications/reconfigurations, and CCTV feeds
- Preprogramming systems (CHE, CAD, and radio including subscribers)

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[36] As the cost per full-time employee is rounded, there is a slight difference ($3) from the budgetary needs.

The exact impact costs would be determined during implementation planning due to numerous factors and considerations, such as using internal staff versus outsourcing, vendor labor costs to relocate and reconfigure equipment/systems, and procurement of new equipment and furniture.

Recurring Costs

Staff from the PSAPs reported minimal recurring costs (unrelated to personnel and benefits).

Staff from the PSAPs noted that their telecommunicators are responsible for more than answering emergency calls and dispatching field responders. As noted, telecommunicators in each PSAP have ancillary job duties. There may be additional recurring costs associated with reallocating or reassigning some ancillary duties that are currently performed by PSAP staff (e.g., front window) or that cannot be handled remotely (e.g., taking cash for certain transactions). MCP recommends that the municipalities re-assess the ancillary duties to determine alternative solutions and staff job responsibilities.

Impact costs will need to be factored into budgets in addition to replacing any positions that may need to be filled if the PSAP were to reside at an alternate location. There may be technical solutions for some ancillary duties performed by the telecommunicators today, and there may be opportunities to relocate some ancillary duties to a consolidated PSAP (e.g., after-hours administrative call handling, warrants, security camera monitor access).

Distributing the Regional Cost-Savings

The project team had extensive discussions regarding the potential *regional cost-savings* that may be realized if all DMA members opt to participate in a full physical consolidation, which compared to the current expenses today, is projected at *approximately* $2.3 million annually. While other DMA members are projected to see a decrease in operational costs, when looking at the cost-sharing models highlighted above, the DCD agencies are projected an annual net increase. Part of the reason for this is because they are already consolidated with several other agencies and, as a result, are realizing cost efficiencies by sharing resources.

Although unfortunate when trying to demonstrate the value of regional consolidation, this is actually a practical example of the cost efficiencies that can be achieved because the DCD agencies are part of a consortium that has resulted in the same opportunities highlighted in this report:

- Staffing provides more than one person on duty 24 x 7
- Improved economies of scale
- Reduction of duplicate technologies and systems, which results in operating cost reductions
- Consolidated radio frequencies, which reduces total staffing needed for coverage
- All operational employees are dedicated and highly trained civilian telecommunicators, which on average, are paid at a lower wage than sworn officers and command staff assigned to dispatch

It can be challenging to look at the cost-sharing models on an individual level and see where the opportunities exist for the DCD agencies because of the potential increase in dispatch fees compared to what they are paying today; however, stakeholders should consider that once there is a consolidation,

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there will be a reduction of operating expenses for DMA through the reduction of equipment, systems, and connectivity that could potentially increase available revenue from DMA to the consolidated PSAP. In other words, the net operating budget that would be shared by the agencies (Table 9) would be lower, which means the agency's share individually would be lower too. This is where MCP sees the greatest long-term opportunity to improve cost efficiencies in the region as a whole.

For those that elect to participate in physical (facilities-based) regionalization, actual rather than hypothetical data to validate the ROM regional savings presented in this document will become available. As this tangible data is entered, turning the ROM into reality, MCP recommends that the DMA explore opportunities to use actual savings to offset any increases that have been realized by individual agencies. The goal is to become as fiscally efficient as the region is operationally efficient.

In addition to caring for family, friends, and colleagues that may live in municipalities served by other DMA member agencies, moving forward proactively and thoughtfully, despite what appears in the ROM to be increased costs, helps the entire region establish its own future rather than being forced into mandated consolidation that could result in even greater initial expense should the State decide to make such a mandate.

4.2.10 Projected Growth and Costs

The DMA region is densely populated and land locked. Historical records indicate an increase in population of just 1.57% between 2010 and 2020. Unless there are significant increases in population, it is not anticipated that population will grow substantially enough to impact service levels.

Table 12: DMA Region Population Growth History[37]

PSAP Location	2010 Population	2020 Population	2021 Population Estimate	Percent Change 2020 – 2021
Downriver Central				
— Wyandotte	25,883	25,058	24,684	-1.49%
— Lincoln Park	38,144	40,245	39,643	-1.50%
— Allen Park	28,210	28,638	28,237	-1.40%
— Southgate	30,047	30,014	29,896	-0.39%
River Rouge	7,903	7,224	7,115	-1.51%
Ecorse	9,512	9,305	9,216	-0.96%
Riverview	12,486	12,490	12,390	-0.80%
Trenton	18,853	18,544	18,295	-1.34%
Grosse Ile	10,371	10,788	10,654	-1.24%

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[37] https://www.census.gov/quickfacts/fact/table/US/PST045221

PSAP Location	2010 Population	2020 Population	2021 Population Estimate	Percent Change 2020 – 2021
Gibraltar	4,656	4,997	4,943	-1.08%
Rockwood	3,202	3,186	3,186	0.00%
Woodhaven	12,875	12,941	12,828	-0.87%
Brownstown	30,627	33,194	33,087	-0.32%
Taylor	63,131	63,409	62,573	-1.32%
Flat Rock	9,878	10,541	10,441	-0.95%
Total	305,778	310,574	307,188	-1.09%

Overall projections for Wayne County (Figure 9) are consistent with the findings in Table 12 and further indicate that significant population growth that would impact the call and incident volumes is unlikely in the region. This could change if there are plans to redevelop housing into multi-unit structures or if additional large businesses move into the region. Any economic development planning that may impact infrastructure should involve the PSAPs in addition to other public safety agencies.
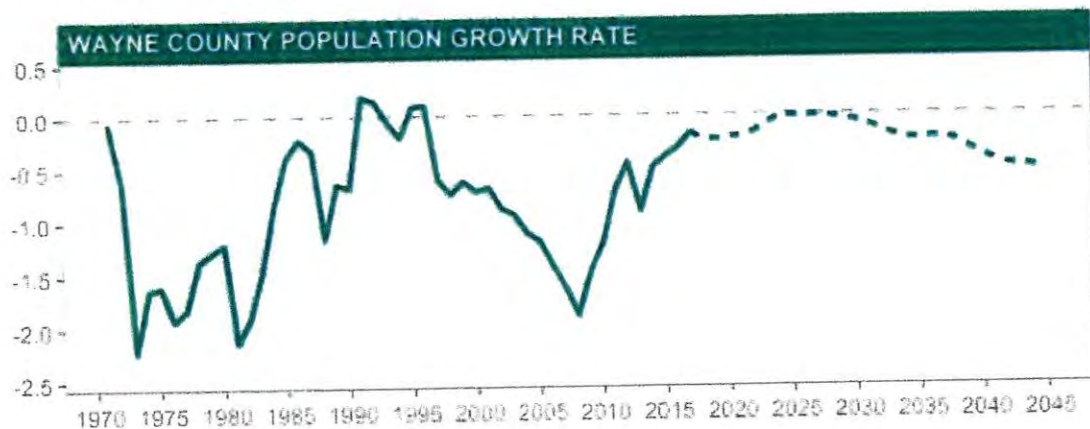
Figure 9: Wayne County Population Projection[38]

Outside of population growth, MCP also analyzed call volume and calls for service. Analyzing the data in Table 9, some agencies have seen a decline in calls for service, while others have seen an increase. Overall, the percentage of change in 911 calls between 2019 and 2021 was 1.26%. When factoring in workload and calculating per capita (Table 14), the agencies average 0.57 911 calls and 1.12 CAD incidents per capita annually. The per capita numbers can be used to determine workload in future growth models, which may be particularly helpful with activity-based cost sharing models to predict future years.

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[38] https://www.milmi.org/_docs/publications/Population_Projections_2045.pdf

Based on MCP's analysis and interviews with staff, an assumption can be made that the served population will not significantly increase to the point of increasing calls for service and requiring additional positions.

Routine analytics reporting should continue in all quantifiable areas:

- 911 calls
- 10-digit emergency and non-emergency calls
- CAD incidents

The national standard[39] can be used to identify the types of PSAP key performance indicators that should be measured and regularly reported out to stakeholders.

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[39] APCO ANS Public Safety Communications Center Key Performance Indicators
https://www.apcointl.org/services/standards/find-standards/?a_type%5B%5D=Operational&a_s=

Table 13: DMA Region Workload Summary 2019 – 2021

PSAP Location	911 Calls			% Change 2019-2021	CAD Incidents Law, Fire, Medical			% Change 2019-2021
	2019	2020	2021		2019	2020	2021	
Brownstown	12,392	12,365	13,783	11.22%	26,994	27,536	26,519	-1.76%
Ecorse	7,915	8,513	8,465	6.95%	5,241	5,907	5,837	11.37%
Flat Rock	3,915	4,019	4,412	12.69%	22,364	25,605	11,186	-49.98%
Gibraltar	1,629	1,790	1,735	6.51%	5,323	4,200	5,232	-1.71%
Grosse Ile	1,518	1,674	1,844	21.48%	7,594	6,968	7,324	-3.56%
River Rouge	12,378	7,383	6,117	-50.58%	25,830	14,070	10,506	-59.33%
Riverview	4,458	4,913	5,313	19.18%	11,496	9,227	13,477	17.23%
Rockwood	1,559	1,639	1,371	-12.06%	5,999	4,881	5,975	-0.40%
Taylor	93,516	90,516	96,254	2.93%	37,105	40,437	37,207	0.27%
Trenton	5,831	5,862	6,449	10.60%	16,927	14,731	15,539	-8.20%
Woodhaven	6,134	5,418	5,935	-3.24%	28,359	37,438	32,934	16.13%
Wyandotte Downriver Central – Allen Park – Lincoln Park – Southgate – Wyandotte	58,730	58,521	60,485	2.99%	125,710	114,969	109,539	-12.86%
Total	**209,975**	**202,613**	**212,613**	**1.26%**	**318,942**	**305,969**	**281,275**	**-11.81%**

Table 14: DMA Region per Capita Estimates[40]

PSAP	Served Population	911 Calls per Capita[41]	CAD Incidents per Capita[42]
Brownstown	33,194	0.35	0.80
Ecorse	9,305	0.91	0.63
Flat Rock	10,541	0.42	1.06
Gibraltar	4,997	0.35	1.05
Grosse Ile	10,788	0.17	0.68
River Rouge	7,224	0.78	1.45
Riverview	12,490	0.43	1.08
Rockwood	3,186	0.43	1.88
Taylor	63,409	0.70	0.59
Trenton	18,544	0.35	0.84
Woodhaven	12,941	0.46	2.54
Wyandotte Downriver Central – Wyandotte – Lincoln Park – Allen Park – Southgate	25,058 40,245 28,638 30,014	0.49	0.88
Averages		0.57	1.12

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[40] Estimates used in this table are based on 2020 population calculations located in Table 12
[41] 9-1-1 calls per capita calculation is based on the 2021 combined 911 call volume (wireless and wireline)
[42] CAD incidents per capita calculation is based on 2021 combined CAD incidents for law enforcement, fire, and medical

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4.3 Technology and Shared Systems-Based Regionalization (Tier 2)

As highlighted in the Timeline (Section 4.5), Tier 1—the physical consolidation aspect of the regionalization plan—is estimated to take two to three years to properly plan and execute. In parallel, however, there are two complementary forms of regionalization that can be leveraged to improve emergency response:

- Technology and systems-based regionalization
- Policy and operations-based regionalization

Although there is room to expand the program, DMA is already engaged in technology and systems-based regionalization. These alternatives are foundational forms of regionalization that can help pave the way to physical consolidation and, at the same time, reduce risk and improve emergency response.

Technology and shared systems-based regionalization has already made considerable progress in DMA with the CHE, CAD, and regional radio system. While this is a great start, virtualization can also include other systems such logging recorder systems. Cloud technologies and hosted software eliminate the need for in-house servers and the associated building space, utilities expense, and IT maintenance and support. With the shared systems already in place, operations would be enhanced by allowing the current PSAP operational design to remain the same, with an additional layer of failover and redundancy.

Those that choose not to join the regional center in Tier 1 are encouraged to continue and leverage the technology and shared systems already in place as well as future enhancements. Utilizing these shared technologies can improve regional interoperability and reduce call transfer delay by utilizing CAD-to-CAD capabilities.

The governance is already in place within DMA to provide for sharing of technology costs. Strengths and challenges related to a virtual (technology-based) regional consolidation are outlined below.

Table 15: Virtual Regionalization Strengths and Challenges

	Strengths	Challenges
Economics	• It is a service option for any agency that is not ready to commit to physical consolidation • Potential cost savings for participating agencies	• Will have cost impacts to integrate and maintain • Requires capital expenditure and cost savings that may not be immediately realized • Shared systems are more complex than standalone systems • May be related cost-impacts to consolidate systems and technologies
Service	• Retains agency autonomy • Participating entities can serve as a backup	• Governance may not agree on data to be shared

	Strengths	Challenges
	• Reduces/eliminates call transfers	
Mutual-aid Communication	• Shared situational awareness, mapping, and other systems if governance allows data to be shared • Interoperability is improved • CAD-to-CAD and other integration and interfaces are leveraged	• May be disagreements on systems and configuration • Not all users are on the same CAD
Other Considerations	• May provide a foundation for physical consolidation	• More sophisticated cybersecurity is needed on shared systems as there are more points of entry

4.3.1   Radio Communications

For PSAP regionalization to be effective, the DMA group will need to consider radio talkgroup consolidation as part of the phased approach as agencies join a regional PSAP. Today, each law enforcement and fire agency, with the exception of DCD, has its own dispatch talkgroup. The group should consider a modification of the existing DCD primary talkgroup by adding Ecorse and River Rouge due to their proximity with the already shared DCD talkgroup.

The table below shows the recommended agency breakdown for the primary talkgroups. This includes the creation of new police and fire Southeast and Southwest talkgroups. Depending on the time of day, it is recommended that the police talkgroups be supported by a dedicated dispatcher. The realignment of the talkgroups could be phased in prior to any physical consolidation as there will be a cost associated with radio reprogramming.

Table 16: DMA Radio Talkgroup Reorganization

Primary Talkgroup	Assigned Agencies	Notes
DCDPD1	• Allen Park • Ecorse • Lincoln Park • River Rouge • Southgate • Wyandotte	• Maintain DCDPD2 for incident management
DCDFD1	• Allen Park • Ecorse • Lincoln Park • River Rouge	• Maintain DCDFD2 for automatic aid and interoperability

Primary Talkgroup	Assigned Agencies	Notes
	• Southgate • Wyandotte	
PD Southeast FD Southeast	• Gibraltar • Grosse Ile • Riverview • Trenton	• Maintain PD and FD South for incident management
PD Southwest FD Southwest	• Brownstown • Flat Rock • Rockwood • Woodhaven	• Maintain PD South for incident management.
TYPD1 TYFD1[43]	• Taylor PD • Taylor FD	• Use DCDPD1 or 2 for interoperability

4.3.1.1 Radio Console System

The current radio console system is well suited to support a regional PSAP. Programming changes will need to be made once the final talkgroup configuration is determined. Additional radio consoles will need to be added as part of the physical consolidation phase. Depending on the desire of the individual police agencies, some existing console equipment could be re-purposed in the regional PSAP.

4.3.2 Core PSAP Systems

Core systems (CAD and CHE) administered by DMA would be configured to maintain geo-diverse hosts at each primary and backup PSAP. New personal computer (PC) hardware will need to be procured with appropriate licenses to accommodate the additional workstations being added.

4.4 Policy and Operations-Based Regionalization (Tier 3)

There are three elements of policy and operations-based regionalization: support, operations, and workforce. Based on the findings highlighted in this report, MCP determined multiple areas where policy and operations-based regionalization could offer operational efficiencies in the DMA region.

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[43] Taylor FD moving to Western Wayne (MPSCS) radio system for dispatch in late 2022

Support	Operations	Workforce
Support Services	Policies and Procedures	Hiring
Performance Management	Protocols	Training
	Planning	Staffing

Figure 10: Policies and Operations-based Regionalization

4.4.1 Support

Support Services

Support services are those tasks that are outside of the primary operation of answering emergency calls and dispatching field responders, such as:

- 911 CHE software, hardware support and maintenance
- IT – hardware and software support for systems that are not already supported by DMA
- GIS – support for mapping systems outside of DMA
- Radio systems – support for the radio systems and infrastructure outside of DMA
- Performance management – QA and other performance areas related to the PSAP, including personnel
- Training – any initiatives related to training new or veteran telecommunicators and support staff
- Administrative, clerical, and facilities – HR, administrative, facilities maintenance, and other services not covered above

Any regionalization involving support services has the potential to reduce operating costs.

Performance Management

Performance management focuses on improving a PSAP's output through continual improvement of internal processes. QA programs and other programs that establish and measure key performance indicators are essential in a PSAP. Examples of how performance management, including QA/QI, can be regionalized include the following:

- Regional performance management policies and procedures, based on industry standards and best practices, can establish benchmarks throughout the DMA region that could make service delivery levels more consistent and reduce risk.
- Performance management templates, including rating criteria, would provide PSAPs with an objective means to measure operational performance and personnel. This also would provide more statistical data on how the DMA system performs as a whole (e.g., call-handling statistics).

- Other performance management opportunities exist that are related to shared support services.

4.4.2 Operations

Policies and Procedures

Effective policies and procedures are essential to PSAP risk management. There are opportunities in the DMA region to establish more uniform policies and procedures based on industry standards and best practices. Developing regional policies and procedures in common operating areas, especially those that involve overlapping service areas and mutual aid, may provide the following opportunities:

- Improved coordinated responses and service levels
- Close or narrow the gap for agencies in the DMA region that do not currently have SOPs
- Increased consistency of services throughout the DMA region
- Reduced errors and risk exposure

Memoranda of understanding (MOUs) or similar types of agreements to support organic regionalization will be necessary to reach intended outcomes.

Protocols and Processes

Establishing regional protocols is another example of policy and operations-based regionalization. Protocols or call guides support the call-handling process. These tools, especially EMD, provide pre-arrival instructions when warranted and, in some cases, improve the safety of citizens and field responders. The use of protocols provides structure that can be objectively assessed by the agency through a QA program. Regionalizing and establishing uniform protocols may provide the following opportunities:

- Improved service level consistency and standards of care throughout the DMA region (e.g., citizen and responder safety, pre-arrival instructions)
- Reduced errors and risk exposure
- Decreased trainee washout rates
- Uniform call-processing procedures that can be objectively measured

Promoting standardized processes and cooperative training (e.g., a shared CAD system) establishes better service and improved partnerships. Benefits to the PSAP, field responders, and the community may include:

- Data gathering that identifies the functionality and capabilities of the PSAP, equipment, technologies, and systems available that may not have been previously known or understood
- Time saving resources
- Increased efficiency
- Smoother transitions when working with multiple centers and/or departments
- Improved information sharing and gathering

Planning

Regionalized planning and development of regional templates have the potential to benefit multiple agencies. Such actions may provide the following opportunities:

- Developing regional COOP plans in common operating areas, especially operational areas that involve overlapping jurisdictions and mutual aid, may improve coordinated responses.
- Developing regional templates in common operating areas would close or narrow the gap for PSAPs in the DMA region that do not currently have a COOP plan.

4.4.3 Workforce

Hiring and retaining an adequate workforce to effectively manage the workload remains one of the greatest challenges in public safety communications today. Cost impacts of benefits such as Family Medical Leave Act (FMLA) compliance, healthcare and pensions, and steady turnover has crippled PSAPs across the country. Hiring and onboarding processes are time-consuming and costly; in most PSAPs, these processes are a revolving door. As detailed in Section 3.5, Personnel and Workforce Management, it is anticipated that challenges related to sustaining a stable workforce in the PSAPs will only increase as technology advances and public expectations continue to grow. These challenges, especially for smaller agencies with a limited workforce and resources, are detrimental.

In analyzing the current state of the PSAPs within the DMA region, MCP identified several areas where regionalization may bring operational efficiencies.

Recruiting and Hiring

Using best practices for recruiting, selection, and hiring can improve retention and, thus, reduce costs of onboarding. Maintaining starting pay in a similar range within a region could deter job hopping. A "one-stop shop" for recruiting and selecting applicants, including the development of a common regional application that can be submitted online, could be considered as a shared and/or outsourced resource with the final hiring and progression left to a respective PSAP. Examples of how the PSAPs can improve hiring efficiencies include the following:

- Develop a recruitment repository for sharing recruiting materials among jurisdictions
- Develop a regional recruiting consortium, including shared services for hiring (e.g., joint applicant testing/screening)

Training

All the PSAPs in the DMA region fall under the state's minimum training requirements, as outlined in Section 3.4, Training, Quality Assurance, and Performance Management. Regionalizing and consolidating training efforts are areas that can be expanded throughout the region, with the goal of a more centralized approach. Improving the training approach would provide the following opportunities:

- Align training with standards and best practices, and the State's minimum training requirements, which can provide a foundation in the DMA region to establish regionalized policies and operations
- Joint training initiatives can reduce cost impacts on individual PSAPs through shared staff and by combining resources to administer training (e.g., shared classes)
- Centralized training can reduce duplicate training efforts that currently occur in the DMA region

Staffing

Although internal policies, procedures, and tools may vary, the job of a telecommunicator is similar throughout the DMA region. Other components of policy and operations-based regionalization can provide a foundation for efforts related to staffing.

Many PSAPs in the DMA region operate with minimal staffing, which can be a challenge when unforeseen vacancies occur. PSAPs rely on neighboring PSAPs to support their operations in the event of an evacuation or other significant event resulting in call surge, with little to no training on agency-specific procedures.

Staffing opportunities exist in the region to improve operational efficiencies and continuity of operations. Policy and operational regionalization may provide the following staffing-related opportunities:

- Shared staff can provide a level of consistency that does not exist today.
- Shared staff could offer a cost-savings when there are unforeseen vacancies or surges in workload require supplemented staff.
- Where supported by technology, shared staff may provide an opportunity to supplement staffing.

4.5 Timeline

Given the information gained and the opinions shared with the project team during site visits and subsequent communications, it is highly advantageous for the DMA to consider a multi-year approach to organic regionalization that begins with an opportunity for those that desire to voluntarily participate in physical consolidation in parallel with further regionalization of shared services along with standardization of policies and procedures. The timeline below focuses on the first phase, which is voluntary physical consolidation into the BPD facility. This facility would only serve as the host facility, and which will require renovation of the identified space to accommodate up to all 12 agencies.

Figure 11: Tier 1 Phased Timeline

A phased approach will allow the process to follow a natural transition in incremental steps that may allow trust to be built between DMA, the municipalities, and the telecommunicators. This trust is integral to the overall success of the effort.

Phase three of Tier 1 is a fully regionalized PSAP inclusive of those that voluntarily agree to participate. Numerous elements must be considered in Tier 1, such as the pay structure, chain of command, operational policies and procedures, and others. Many will run concurrently with the first phase of the transition.

Once there is agreement on the path forward, regardless of which path that may be, management must allow for impacted staff to have the operational support and training to perform and mitigate any lapse in service levels. When the proper time is not taken, many considerations for not only governance but also personnel management can be unintentionally missed.

One element of consolidation planning that is designed to help integrate employees who have not initiated a lateral move voluntarily but find themselves part of a new organization is a transfer and integration plan. Establishing a transfer and integration plan within a full transition plan also will set guidelines to ease the same process if more agencies desire to join in the future. It is important that the most valuable resource, the people that work the line, know that HR-related and collective bargaining items between the 12 PSAPs, will be proactively addressed. Consistent, ongoing communication of the change plan with employees will minimize the stress associated with Tier 1. Establishing such a plan has, in other organizations, been demonstrated to provide the following benefits:

- Attract and retain talented communications staff (before, during, and after the transition)
- Align years of service due to merging of employees
- Promote higher levels of morale among employees because they know what to expect in consolidation efforts, know their concerns are being taken into consideration, and most importantly, know their experience is respected and valued
- Provide new opportunities for promotion or advancement as changes take place in the future

5 Conclusion

Full regionalization of the PSAPs in the DMA region is not only feasible but also logical to improve delivery of public safety services to its citizens and visitors. MCP has provided information that the DMA stakeholders should consider for deciding whether and how to combine operations. This information should help decision-makers bring about an optimal decision based on the collective objectives of staff efficiency, improved service delivery, and improved mutual-aid communications.

Appendix A – Cybersecurity Resources and Standards

APCO, *An Introduction to Cybersecurity: A Guide for PSAPs,* Version 1.0, July 2016.
https://www.911.gov/assets/An-Introduction-to-Cybersecurity-A-Guide-For-PSAPs-1638566090.pdf

APCO, *Broadband Implications for the PSAP: Analyzing the Future of Emergency Communications.*
https://www.apcointl.org/ext/pages/p43/p43book.html

APCO, *Cybersecurity Training for Public Safety Communications Personnel,* APCO 3.110.1-2019.
https://www.apcointl.org/standards/standards-to-download/

FBI, FBI Tech Tuesday: Protecting Against PII Theft. https://www.fbi.gov/contact-us/field-offices/phoenix/news/press-releases/fbi-tech-tuesday-protecting-against-pii-theft

FCC, Task Force on Optimal PSAP Architecture (TFOPA), *Final Report.*https://www.fcc.gov/about-fcc/advisory-committees/general/task-force-optimal-public-safety-answering-point

Federal Trade Commission (FTC) Consumer Information, Computer Security.
https://www.consumer.ftc.gov/articles/0009-computer-security

FTC Consumer Information, Tips for Using Public Wi-Fi Networks.
https://www.consumer.ftc.gov/articles/0014-tips-using-public-wi-fi-networks

Information Technology Laboratory, Security for Enterprise Telework and Remote Access Solutions.
https://ws680.nist.gov/publication/get_pdf.cfm?pub_id=903007

National Institute of Standards and Technology (NIST), *Framework for Improving Critical Infrastructure Cybersecurity,* Version 1.1, April 16, 2018.
https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf

NIST, Guide for Cybersecurity Event Recovery. https://csrc.nist.gov/publications/detail/sp/800-184/final

NIST, National Cybersecurity Center of Excellence, Mobile Device Security: Cloud and Hybrid Builds.
https://www.nccoe.nist.gov/projects/building-blocks/mobile-device-security/cloud-hybrid

Appendix B – PSAP Budget Comparison

PSAP	Personnel Costs. Including actual reported costs for telecommunicator, administrative and management annual salaries, overtime and benefits (numbers represent proposed staffing) only for the employees that work a dispatch position.	Other Costs: includes maintenance costs for technology and other misc. recurring costs directly related to PSAP operations	Overhead: includes technology costs and other miscellaneous overhead directly related to PSAP operations.	Total PSAP Operating Expenses	Personnel Costs % of Budget
Brownstown	$203,887 – Civilian base pay $157,450 – Benefits $55,000 – Overtime $4,140 – IT services $1,000 – HR services $500 – Payroll services $3,200 – Workers' compensation $9,240 - Sick and vacation $13,310 - Holiday pay Total Personnel - $447,727	$9,065 – Admin phone service $1,600 – Radio console maintenance $4,853 - Radio other $2,500 – Admin supplies $8,200 – Electricity and gas $1,000 – Uniform expense $500 – CJIS training Total Other Costs - $27,718	$400 – Clothing $18,757 – SINC Total Overhead - $19,157	$494,602	90.52%
Ecorse	$179,181 – Wages (50% of total wages for four lieutenants) $74,686 – Benefits (50% of total benefits for four lieutenants) Total Personnel - $253,867	*IT services: not in the police budget, handled by the city*	*None reported*	$253,867	100%
Flat Rock	$60,000 – Civilian dispatch base pay (60 hours per week) $292,909 - Sworn officer base pay (108 Hours per week) $1,990 Sworn benefits $10,000.00 – Dispatch overtime (sworn officer OT rate is $60.24/hour) Total Personnel Costs - $364,899		$10,182 - SINC $15,000 - IT services Total Overhead - $25,182	$390,081	93.54%

PSAP	Personnel Costs. Including actual reported costs for telecommunicator, administrative and management annual salaries, overtime and benefits (numbers represent proposed staffing) only for the employees that work a dispatch position.	Other Costs: includes maintenance costs for technology and other misc. recurring costs directly related to PSAP operations	Overhead: includes technology costs and other miscellaneous overhead directly related to PSAP operations	Total PSAP Operating Expenses	Personnel Costs % of Budget
Gibraltar	$149,000 – Civilian dispatch base $27,000 – Overtime $30,400 – Payroll Taxes Total Personnel Costs - $206,400	$13,975 – UPS/generator $8,250 – Office supplies $2,500 - Training/APCO Total Other Costs - $24,725	$1,200 - Uniforms $4,287- SINC Total Overhead – $5,487	$236,612	87.23%
Grosse Ile	$357,489 - Civilian dispatch base $32,224 - Sworn dispatch base $194,857 - Benefits (50% estimate) Total Personnel Costs - $584,570	$4,375 Power phone $2,840 OnSolve (CodeRed) Total Other Costs - $7,215	$9,108 SINC Total Overhead - $9,108	$600,893	97.28%
River Rouge	$310,979 – Dispatch base $155,490 - Benefits (50% estimate) Total Personnel Costs - $466,469	None reported	$10,000 - IT service estimate ($100.00 per hour as needed) $13,398 SINC Total Overhead - $23,398	$489,867	95.22%
Riverview	$166,440 – Civilian dispatch base $35,923 – Sworn overtime $17,962 - Sworn benefits (50% estimate) Total Personnel Costs - $220,325	$3,861 – Console maintenance $500 – Uniforms $8,000 - Code Red Total Other Costs - $12,361	$13,934 SINC Total Overhead - $13,934	$246,620	89.34%
Rockwood	$157,680 civilian wage (no benefits) $6,698 overtime for sworn officers to cover dispatch Total Personnel Costs - $164,378	Siren warning system - $2,000 Active911 - $160.00 Total Other Costs - $2,160	$3,751 SINC Total Overhead - $3,751	$170,289	96.53%
Taylor	$873,600 – base pay civilian $420,000 – benefits civilian $5,000 – overtime $223,380 – Sworn overtime Total Personnel Costs - $1,521,980	$80,000 – CAD Maintenance $3,000 – Uniforms Total Other Costs - $83,000	CAD, and associated (CLEMIS fees) – not reported	$1,604,980	94.83%

PSAP	Personnel Costs: Including actual reported costs for telecommunicator, administrative and management annual salaries, overtime and benefits (numbers represent proposed staffing) only for the employees that work a dispatch position.	Other Costs: includes maintenance costs for technology and other misc. recurring costs directly related to PSAP operations	Overhead: includes technology costs and other miscellaneous overhead directly related to PSAP operations.	Total PSAP Operating Expenses	Personnel Costs % of Budget
Trenton	$183,666 – Base civilian dispatch $181,123 – Sworn base Total Personnel Costs - $364,789	$500 Active911 $600 – Payroll serviced Total Other Costs - $1,100	$15, 006 SINC $1,000 – Dispatch uniforms Total Overhead - $16,006	$381,895	95.52%
Woodhaven	$341,000 – Base pay command staff (50% for four lieutenants) $126,000 – Benefits (75% estimate for four lieutenants) $15,000 - Overtime Total Personnel Costs - $482,000	$500 – Training/CPR $1,000 – Training CJIS $10,000 – IT services (estimate) Total Other Costs - $11,500	$14,470 SINC Total Overhead - $14,470	$507,970	94.89%
Downriver Central Dispatch	$582,494 – Base pay civilians + Overtime $191,492 – Benefits civilian Total Personnel Costs - $773,986	$10,000 – Facility lease $1,500 – Office supplies $4,000 – Uniforms $10,000 – Training Total Other Costs - $25,500	$25,000 – Equipment maintenance $31,350 – Miscellaneous services $90,000 – Administrative reimbursement $87,354 - SINC[44] Total Overhead - $233,704	$1,033,190	74.91%
Grand Total	$5,851,390	$194,679	$363,197	$6,409,266	91.03%

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[44] SINC consortium fees are paid directly by individual member agencies and are not part of the DCD operating budget.

Appendix C – Workforce Integration and Transition Crosswalk

Table 17: Employee Integration Crosswalk

Employment	Administration
- Transitional Employment Criteria - Positions (titles/roles) - Organizational Structure - Salary, Raises and Monetary Achievement Awards - Separation of Service - Seniority	- Dress Code - Shift Bids - Vacation Bids **Training Requirements** - New Hire vs. Transitional - Probation
Leave Accrual - Bereavement - Comp Time - Disability - Domestic Violence - Donation of Time - Holiday Time - Jury Duty - Leave without Pay - Military Leave - Paid Holidays - Parental Involvement - Personal Days - Sick - Sick Leave Conversion - Vacation	**Health Insurance** - Dental - Employee Assistance Program (EAP) - Employee Health Centers - Flexible Savings Account (FSA) - Life Insurance - Medical - Nurse Line - Vision - Wellness Program
Retirement - Payouts - Pension Plan - Retiree Insurance Benefits - Retirement Recognition	**Other** - Awards and Recognition - Cardio Station - Liability Protection - Professional Development Opportunities - Tuition Assistance - Uniform Allowance

Appendix D – Space Estimates

Table 18: PSAP Space Estimates – Renovated Facility

Functional Position	NSF[45] Requirement	Grossing Factor	GSF Total	Specifications
Administration and Support Staff	720	216	936	Offices for Director, Secretary/Administrative Assistant, Operations Manager, small conference room, office/copy area, file area (lateral files), supply closet, equipment closet, coat room, quiet room
Dispatch/911	1,156	553	1709	Supervisors/911, call intake/dispatch workstations, storage, and supplies
911 and Dispatch Records	256	88	344	Filing area – warrants/justice, work area, storage
Subtotal	2,132	857	2,989	
Building GSF @ 10%		299		
Total Building Area	2,132	1,156	3,288	

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[45] Net square footage

Appendix E – Critical Facilities Codes and Hazards

- Model building codes and design and construction standards present the minimum requirements for constructing critical facilities like a PSAP. The American Society of Civil Engineers (ASCE) has published the most widely known such standards—ASCE 7, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*.

- The Federal Emergency Management Agency (FEMA) has published a design guide for critical facilities—FEMA 543, *Design Guide for Improving Critical Facility Safety from Flooding and High Winds: Providing Protection to People and Buildings* (2007)—that assists localities during planning, design, and construction of critical infrastructure.

- Address critical hazards – The County's Hazard Mitigation Plan released in 2019 identifies communications infrastructure and facilities such as 911 as critical infrastructure susceptible to hazards. Any modification or construction to a new or existing facility should consider the hazards identified in the plan.

- Designing and constructing critical facilities to these higher standards will increase the overall cost of the physical building above that of a standard office-type structure. These costs cannot be estimated in advance due to several unknown factors, including (but not limited to) the wind speed and flooding levels the building should be designed to withstand. These factors vary from locality to locality but must be included in the overall cost of the facility.

- Building systems are a key area of importance, regardless of the decision to build new or renovate an existing facility. Because of the critical nature of public safety, building systems such as redundant power, heating, ventilation, and air conditioning (HVAC), and building security systems must continue to function during disasters, even when the surrounding locality may be without power or other utilities. FEMA recommends that four key concepts be considered in the design of building systems for a mission-critical facility:
  - Backup systems should be provided.
  - All points of system access—including entry points, control panels, and maintenance access—should be in secured areas.
  - All systems should be protected from potential hazards.
  - All systems should be physically separated.[46]

- Considering the four key concepts above, typical PSAP facility components include, but are not limited to, the following:
  - Backup power supply (i.e., generator[s] and a UPS system)
  - Redundant HVAC for the building and the separate equipment room
  - Service contracts and adequate insurance for the UPS system, generator(s), and HVAC system
    - Wallboards for sound absorption
    - Raised floor systems

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[46] "Hardened First Responder Facility." (2003). FEMA. https://www.fema.gov/pdf/plan/prevent/bestpractices/hardened.pdf

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- Structured cabling systems
- Single point grounding systems
- Kitchen areas, lockers

- ROM pricing for facility construction ranges from $550–$600 per square foot. Even then, these costs fluctuate vastly depending on the availability of construction resources. MCP has experienced upwards of $800 per square foot; however, much of that cost depends on how hardened the facility is and what the construction costs are at the time of the build/remodel. These costs do not include external facility-related expenses such as generator fuel, public utility tie-ins, and COOP/DR planning.

Appendix F – Cost-Sharing Models

Identifying a funding method for an independent PSAP that, through sharing of services has created a regional communications system that provides a combination of call-handling and dispatch services, is a complicated task. A key goal should be the fair and equitable funding of services—particularly relating to call dispatch—across all member jurisdictions.

Population

The population-based cost-allocation model involves assessing a share of operational costs based upon the population within each jurisdiction. Using this method, member jurisdictions would be assessed a portion of the operational cost on a per-capita basis. The projected operating budget is divided by the total population to determine an average-per-person assessment. While several adaptations of a population-based model are possible, MCP recognizes that this model may be more suitable in areas where population data and response agencies are defined clearly by municipal boundaries.

Activity Volume

Cost assessment based upon activity is a common method that is used to fund shared services communications centers. Routine communications center activities may be tracked and documented including:

- Incoming 911 calls
- Incoming 911 and 10-digit calls
- Dispatched incidents
- Field-originated calls
- Radio transmissions

Activity-based costs can be derived using two methods. The first involves tracking the activity volume associated with each member agency. The entity is assessed by the cost of provisioning specific services based upon actual use. The second method involves averaging the volume of activity across all participating jurisdictions or agencies. As an example, PSAPs would document the number of 911 calls received annually. The annual operating budget can be divided by the number of 911 calls to derive a per-call cost. Each entity then would contribute a share of the cost based upon the average of overall system usage.

Maintenance of Effort

In this model, each agency contributes an equal portion of the operating budget based upon the straight division of the total costs among all member agencies. Though rarely used as a standalone model, this model is the most simplistic in terms of cost distribution. The governing entity must determine the basis of the cost allocation, similar to the activity-based method.

Ad Valorem

This method uses the tax valuation of properties located within each jurisdiction as the basis to determine the level of contribution. This is generally accomplished utilizing an equalized assessed value (EAV), which is the application of the state's equalization factor to the assessed value of a parcel of property. Tax bills are calculated by multiplying the EAV (after any deductions for homesteads) by the tax rate.

This method fails to account for the taxing overlay of the EMS and municipal jurisdictions. Additionally, some municipalities do not levy a tax on the EAV and, subsequently, would not have a revenue source to contribute without a push for a local legislative change.

Also, an ad valorem basis model would not accurately account for activity in the case of a distressed municipality. If there is an area that has a higher-than-normal call volume due to higher crime or an increased workday population, it may not necessarily be reflected in property values. It is possible in this case to have a suburban bedroom community with higher property values, yet less of a demand for service, paying more than another municipality that has a higher demand for service.

Resource

This method is based upon the number of public safety resources (e.g., personnel, apparatus, stations) that each member agency possesses. This method is based upon the assumption that resources are closely aligned with activity and demands on the communications system.

When determining personnel resources typically use salary mid-points of communications personnel, whereas when field responders are used the total number of personnel is used for the calculations.

Hybrid

Any of the methods described could be combined, either by discipline (law, fire/EMS) or by jurisdiction if it is advantageous to the governance body; for instance, a hybrid of the Activity (call volume) method that also separates access charges and divides them among the law enforcement entities (Maintenance of Effort).

Another scenario is to use a multi-phased approach with a funding formula that considers several factors and divides the funding needs first by discipline (law or fire/EMS), then utilizes an Ad Valorem method for fire protection districts and the Resource method for law enforcement agencies.

Appendix G – Personnel and Workforce Forecast

One key factor in any consolidation initiative is assuring the appropriate allocation of resources. This requires analyzing the current call, and incident volumes with the operational needs of the served agencies and applying industry standards and best practices—with the outcome being a recommended operational configuration and a forecasted staffing requirement. Consolidation does not result in a reduction of telecommunicator staff—unless there is a reduction in the number of total workstation positions that are required—although efficiencies are often gained in the handling of calls and incidents (e.g., eliminating call transfers) and providing support services (e.g., QA and training) that were not previously provided.

Collectively, call-takers and dispatchers are often referred to as telecommunicators, and this is the term MCP will use when referencing staffing, although delineations will be made for supervisory personnel. NENA defines a telecommunicator as follows:

> *An emergency response coordination professional trained to receive, assess, and prioritize emergency requests for assistance, including, but not limited to:*
> * *Determining the location of the emergency being reported*
> * *Determining the appropriate law enforcement, fire, emergency medical, or combination of those emergency services to respond to the emergency*
> * *Coordinating the implementation of that emergency response to the location of the emergency*
> * *Processing requests for assistance from emergency responders.[47]*

NFPA defines a telecommunicator (generically) as follows:

> *An individual whose primary responsibility is to receive, process, or disseminate information of a public safety nature via telecommunication devices.[48]*

More detailed information on the telecommunicator description can be found in the reclassification toolkit[49], which includes valuable information related to knowledge, skills, and traits of a telecommunicator, and modern framework for developing a telecommunicator job description.

To determine telecommunicator staffing needs, and often workspace (and/or console workstations), PSAPs use calculations based on call volume and incident workload, which drives the total number of primary positions needed. The call volume is shown in the tables below for the PSAPs participating in DMA.

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[47] NENA-ADM-000.24-2021, June 22, 2021, *NENA Master Glossary of 9-1-1 Terminology*, page 203 of 224. https://cdn.ymaws.com/www.nena.org/resource/resmgr/standards-archived/nena-adm-000.24-2021_final_2.pdf
[48] NFPA 1225: Standard for Emergency Services Communications
[49] https://911-assets.nyc3.digitaloceanspaces.com/N911-Program_BLS_Toolkit_Parts_1-4_08JUNE2022_Final.pdf

Table 19: 2019 – 2021 Average Call Volume Statistics

	Emergency Calls	10-Digit[50]	Abandoned	Total
Brownstown	15,847	2,066	62	17,975
Ecorse	8,298	656	63	9,017
Flat Rock	4,115	735	24	4,874
Gibraltar	1,718	331	14	2,063
Gross Ile	1,679	535	16	2,230
River Rouge	8,626	628	413	9,667
Riverview	4,895	837	28	5,760
Rockwood	1,523	221	13	1,757
Taylor	93,428	51,664	475	145,567
Trenton	6,047	1,436	46	7,529
Woodhaven	5,829	1,655	35	7,519
DCD, which includes: – Wyandotte – Lincoln Park – Allen Park – Southgate	59,245	123,227	20,379	202,851
Total	211,250	183,991	21,568	416,809

By definition, Motorola VESTA 911 CHE analytics defines abandoned calls as an emergency call where the caller hung up before the call was answered. The abandoned call count includes:

- Not Serviced calls – Abandoned call where the calling party's number was recorded but the system did not find any call where the agent called the caller back.
- Released calls – Abandoned call where the system released the call prior to a callback.
- Serviced calls – Abandoned call where the calling party's number was recorded and the system found that the agent called the caller back.

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[50] Administrative counts may not accurately reflect actual totals because of the lack of analytics. Most PSAPs in DMA do not have an interface between their CHE and administrative phone system.

- Unserviceable – Abandoned call where the calling party's number was not recorded or was invalid, so the agent could not call the caller back.

These various definitions and the fact that the phone company creates abandoned calls to test the integrity of the line when there is no traffic detected for a period of time may skew the abandoned call statistics.

Table 20: 2017 – 2021 Average Incident Volume Statistics

	Law Enforcement	Fire/EMS	Total
Brownstown	23,441	3,754	27,195
Ecorse	5,532	1,888	7,420
Flat Rock	24,279	1,106	25,385
Gibraltar	4,638	532	5,170
Gross Ile	6,859	586	7,445
River Rouge	11,474	1,198	12,672
Riverview	9,914	2,416	12,330
Rockwood	5,633	411	6,044
Taylor	33,777	5,820	39,597
Trenton	14,355	2,545	16,900
Woodhaven	29,144	1,561	30,705
DCD, which includes: – Wyandotte – Lincoln Park – Allen Park – Southgate	25,380 35,074 17,706 23,368 102,158 (total)	3,402 6,713 3,658 4,886 18,659 (total)	120,187
Total	270,574	40,476	311,050

APCO and NENA both have tools to assist in determining baseline staffing. PSAP data is measured and used as a basis for projecting the number of call-taking, dispatch, and supervisory staff required to adequately handle call and incident volumes and meet and/or exceed national call-answering standards. MCP uses the NENA staffing tool (in concert with Erlang C) to project positions and staffing requirements,

primarily because the NENA tool considers that dispatchers can handle more than one incident at a time. Two approaches to staffing calculations are volume- and coverage-based positions.

- Volume-based is dependent on the respective activity levels in the center, which determines the employees needed to fill a position. The workload (e.g., incoming calls, incidents) determines the number of individuals that should be scheduled for each shift to handle the volume of work.
- Coverage-based refers to a position that must be staffed regardless of the volume of work at the respective position. The position could be staffed 24 x 7 or just certain hours of the day.

To further expound on volume-based staffing, the resulting calculation is the number of staff necessary to handle the volume of the respective data, such as fire calls. For example, if fire call volume is low, with one person on duty, based on the factors considered[51], one employee could handle all the incidents (dispatch, associated radio traffic, etc.). However, this is not realistic as one person cannot work 24 x 7/365, and the position must be staffed regardless of volume. In this case, coverage-based (position) staffing is used to forecast the number of staff required to cover the position. For most PSAPs, dispatch positions are coverage-based.

Conversely, call-take positions, without dispatch responsibilities, are likely to be volume-based positions—meaning the number of staff necessary to answer incoming calls may fluctuate, based on historical incoming call data. There is often a greater need during business hours and early evening hours, for example, than overnight hours. This specific level of detail requires greater breakdowns of the call data, which may be difficult for some agencies to ascertain.

Other factors also play a role in forecasting staffing, including available work hours, utilization, and attrition rates.

Available work hours. The number of hours a telecommunicator is available to work during a year. For agencies working 8-hour shifts, a telecommunicator works 260 days or 2,080 hours a year. This is typically represented in a 5-day on/2-day off schedule. For agencies working 12-hour shifts, a telecommunicator works roughly 182 days or 2,184 hours a year. There are varying 12-hour shift schedules, including a 4-on/4-off, or a 4-on/3-off, 3-on/4-off, or a 2-on/2-off, 3-on/2-off, 2-on/3-off.

To determine availability, vacation, holiday, sick, FMLA, and personal leave, training, military leave, and other activities are subtracted from the total work hours. Leave data varies between the PSAPs, and not all agencies were able to provide accurate data. The average leave in the region is impacted by labor contracts and varying classifications (e.g., full-time, part-time, sworn, and non-sworn).

For the exercise of forecasting staffing, MCP used the following leave hours:

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[51] Incident volume, average incident times, processing capabilities, and telecommunicator availability

Leave Type	Average Annual Hours Taken
Vacation and holiday	144
Sick leave	80
Personal leave	24
Training leave	12
Other activities (meetings, special assignments)	8
Total Average Leave per Employee	268 hours

An exact determination of benefits, including time off, is a vital component of implementation planning and is dependent on other factors such as labor contracts and where the agency structure falls.

Utilization. In staffing calculations, utilization measures the percentage of time that staff (telecommunicators and supervisors) are available to work each shift. This is calculated by taking a respective shift length and subtracting the time allotted away from a position during the shift, such as for meals and breaks. Another factor for consideration is duties not related to the specific activities of the PSAP, such as responsibilities for a walkup window. (Some agencies may wish to include a buffer of two to three minutes an hour to allow staff to decompress or debrief after stressful calls; this is agency specific.) The resulting calculation is the utilization rate—the percentage of time each shift that staff are *available* to do their respective job.

The PSAPs do not allot time for breaks or meals. MCP used 75 minutes (12-hour shift) and 60 minutes (8-hour shift) for breaks and meals as, ideally, in a consolidated environment, all telecommunicators receive breaks and meals consistently. The resulting calculation for a consolidated environment on 8-hour shifts is 88% and 12-hour shifts is 90%. These calculations are without any buffers.

When considered in context with leave, the true availability of staff would be 1,584 hours (8-hour shifts) and 1,706 hours (12-hour shifts).

Attrition. Attrition is also referred to as turnover. APCO commissioned a study of communications centers across the country "to address the chronic problems of understaffing and turnover that exist within the field of emergency communications."[52] The new study found the average retention rate is 71%, for an attrition rate of 29%.[53]

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[52] "Project RETAINS: Staffing and Retention in Public Safety Answering Points (PSAPs): A Supplemental Study." APCO Project Retains, APCO International. https://www.apcointl.org/resources/staffing-retention/project-retains/
[53] Project RETAINS: Staffing and Retention in Public Safety Answering Points (PSAPs): A Supplemental Study." APCO Project Retains, APCO International. https://www.apcointl.org/resources/staffing-retention/project-retains/

It is not possible to calculate attrition for a consolidated environment, but it is assumed that attrition will continue to be experienced, with the hopes of it being less than in the current environment. For this study, MCP used a factor of 25% for the turnover rate in a consolidated PSAP, which is comparable to the majority of the 12 PSAPs.

Performance metrics. Performance metrics measure the operational efficiency of a PSAP with targeted goals and established standards. The most common metric involves the average time it takes a PSAP to answer its incoming emergency calls. PSAPs typically try to align their call answering goals to NENA[54] and/or NFPA[55] standards. The call answering standards require 90% of 911 calls/requests to be answered within 15 seconds and 95% of 911 calls/requests answered within 20 seconds.

Another metric is the abandoned call rate. An abandoned call is defined by NENA as "an emergency Call in which the caller disconnects before the Call can be answered by the Public Safety Answering Point (PSAP)."[56] Every PSAP will experience abandoned calls; the goal is to keep them as low as possible. There are many reasons for abandoned calls, including those who realized they have misdialed. When staff members are on another line, incoming calls cannot be answered right away, particularly if only one telecommunicator is on duty. Regardless of the reason, this creates additional work as staff must try to re-establish contact with the caller to determine if there is an actual emergency. There is no industry metric for a "normal" number of abandoned calls. In MCP's experience, an abandoned call rate of 8% or less is ideal and attainable when a center is appropriately staffed. In the *2020 Talkdesk Contact Center KPI Benchmarking Report,* the average abandonment rate for Talkdesk customers was 7.95%.[57] MetricNet, a performance benchmarking company in McLean, Virginia, for IT and call centers, suggests an optimal range for abandoned calls is between 4% and 7%[58]. While the focus of these companies is on the service industry, not the 911 industry, there is a correlation between the two. The industries are answering calls from the public in response to their stated mission or objective. The average abandoned call rate for the majority of the PSAPs in DMA is less than 1%.[59] For those that are higher, there have been some issues with AT&T creating abandoned calls when no activity is detected on the line, which can increase the abandoned call rate (see Table 19).

In a consolidated environment, a single telecommunicator will not be on duty alone and a decrease in abandoned calls may be realized.

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[54] NENA: 90% of 911 calls answered within 15 seconds and 95% of 911 calls (should be) answered within 20 seconds
[55] NFPA: 90% of events received on emergency lines answered within 15 seconds and 95 percent of alarms answered within 20 seconds
[56] "Abandoned Call," NENA Master Glossary of 9-1-1 Terminology, National Emergency Number Association, January 20, 2020, pg. 18 of 206. https://www.nena.org/page/Glossary
[57] Talkdesk is a cloud contact center. www.talkdesk.com
[58] "Call Abandonment Rate," MetricNet, May 23, 2012, http://www.metricnet.com/call-abandonment-rate.
[59] Abandoned call statistics could include hang ups. Data was obtained from the VESTA Analytics software and does not identify every type of abandoned call.

The value of any resulting staffing forecast is dependent upon the accuracy of the data and statistics provided by the PSAP(s).

However, it is not as simple as entering data into the tools to calculate staffing requirements. The output also must be analyzed, with considerations given to the operational configuration of the PSAP, other work-related responsibilities, supervisory responsibilities, and performance metrics. Common sense and experience play a significant role in staffing configurations. There is no "best" method for determining appropriate staffing levels. Using multiple methods and comparing results, combined with industry experience, is a best practice that can yield repeatable and verifiable results.

To determine a recommended operational configuration for a consolidation initiative, volume-based calculations are conducted. Based on the available data, which includes incident volumes, processing capabilities, and telecommunicator availability, the following primary positions are recommended for the new consolidated PSAP:

- Primary Law – 4
- Primary Fire/EMS – 2
- Call-Take/Relief – 3

The call-takers would provide relief and handle call surge and to support law and fire/EMS dispatch positions. It is anticipated that agencies will continue to have access to talkgroups, which they can utilize for routine car-to-car traffic and, in some cases, during major incidents. It is also assumed that field units will leverage any available remote access (e.g., MDTs) that they have in order to reduce radio traffic and workload on the telecommunicators.

MCP has recommended consolidating talkgroups to eliminate the need for a single telecommunicator to monitor multiple frequencies simultaneously. Having a law enforcement dispatcher responsible for multiple primary frequencies poses a risk for radio traffic being missed or units having to wait for an acknowledgment, or, worse, having to decide which radio traffic to handle first if two emergencies present themselves simultaneously (see Section 4.3.1, Radio Communications, for more detailed information on consolidating talkgroups).

In the event that one or more agencies do not participate in full physical consolidation, a determination would need to be made on the minimum number of positions to be staffed 24 x 7. If it is determined that a large agency (e.g., Taylor) is not consolidating immediately, that would eliminate one primary law dispatch position, which would reduce the total number of telecommunicator positions by five to 6.5 positions, depending on if attrition is factored in and if the employees are on 8-hour or 12-hour shifts.

12-hour Shift Configuration

In a 12-hour shift configuration, four squads (groups) support operations 24 x 7. Two squads are assigned to the day shift and two squads are assigned to the night shift. Days off rotate between the squads on days and the squads on nights.

For a 12-hour shift configuration, staffing nine positions 24 x 7 and a tenth position 12 hours per day (Table 21) requires a minimum of 49 telecommunicators *trained* on the positions; to account for attrition, both natural and forced, a minimum of 61 telecommunicators would be necessary. All telecommunicators ideally would be cross-trained in a consolidated environment. This scenario assumes that supervisors will continue to count towards cross-training objectives and minimum staffing.

Thus, an operational configuration could look like the following for a 12-hour shift:

Table 21: Operational Configuration – 12-hour Shifts

Days	Nights
• Law enforcement dispatch – 4 • Fire/EMS dispatch – 2 • Backup/secondary call-taker – 1 • Law enforcement backup/secondary call-taker – 1 • Call-take/relief – 2	• Law enforcement dispatch – 4 • Fire/EMS dispatch – 2 • Call-take/relief – 3

To allow for breaks and meals, relief positions must be considered. For example, in the above configuration, seven positions 24 x 7 must be maintained while breaks are afforded to each person (75-minutes for 12-hour shifts and 60-minutes for 8-hour shifts).

Although not a best practice, the supervisors and leads in this consolidation model would be working supervisors and leads and would routinely answer incoming calls or work a dispatch position as warranted, while still providing direct oversight to personnel. This aligns with NFPA 1225. Section 15.3.4 states: "Supervision shall be provided when more than two telecommunicators are on duty."[60] The annex notes: "The supervisor position(s) in the communications center are provided in addition to the telecommunicators positions. Although supervisory personnel are intended to be available for problem solving, the supervisor position is permitted to be a working position."[61] The "working supervisors" would also be supported by the dedicated operations manager position.

It is also important to not forget leave time. It is safe to plan for one person on leave each day. Thus, staffing the above positions, allowing leave, and providing breaks require a staff complement of 49 to 61, including supervisors and leads. The use of part-time staff, when scheduled appropriately, will offset the

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[60] NFPA 1225: Standard for Emergency Services Communications
[61] Ibid.

need for additional full-time telecommunicators. It will be crucial to schedule leave time so as not to leave a shift short. For example, a telecommunicator on a day shift should not be on leave when the relief person is scheduled off.

A shift complement would look like the following in this scenario:

Table 22: 12-Hour Operational Configuration – Staffing by Shift

Shift Complement	
Days x 2	Nights x 2
• Law dispatcher – 4 • Fire/EMS dispatcher – 2 • Law enforcement backup/secondary call-taker – 1 • Fire/EMS backup/secondary call-taker – 1 • Call-take/relief – 2 • On leave – 1 – 2	• Law dispatcher – 4 • Fire/EMS dispatcher – 2 • Backup/secondary call-taker – 1 • Law enforcement backup/secondary call-taker – 1 • Call-take/relief – 1 • On leave – 1 – 2

Appropriate and focused supervision of operational personnel is critical, particularly for a new consolidated operational environment. Supervisors will provide the following support:

- Coordination and direction during major emergency incidents
- More supervision for diversified complex tasks
- Greater knowledge of laws, procedures, and administrative processes
- Focus on customer service to the public and subscriber agencies
- Improved communications with management, subordinates, and responder agencies
- Problem-solving
- Narrower scope of supervision when implementing new policies and procedures
- Staying abreast of technological changes/advancements
- Single point of contact for responder agencies
- Readily able to identify areas for growth and performance recognition among subordinates
- Document employees' performance for annual/periodic reviews
- Guide new employees who have less training and experience
- Spend more time with subordinates individually, daily
- Identify areas for remedial training, counseling, or discipline, when appropriate
- Address issues upon occurrence, not after the fact
- Set priorities
- Delegation of tasks/responsibilities

Span of control guidance in general used to be clear with three to seven direct reports per supervisor, with five considered ideal. However, new guidance regarding the span of control is how many people can be effectively managed[62], leaving it up to each agency to determine the number.

The International Customer Management Institute (ICMI) notes, "In contact centers, somewhere between 8 and 12 agents per supervisor makes sense in many centers. But a 5:1 or 20:1 ratio may be equally justifiable – there's simply no alternative to understanding your own unique environment and making a decision that is right for you."[63]

ICMI also notes trends that drive span of control up or down.

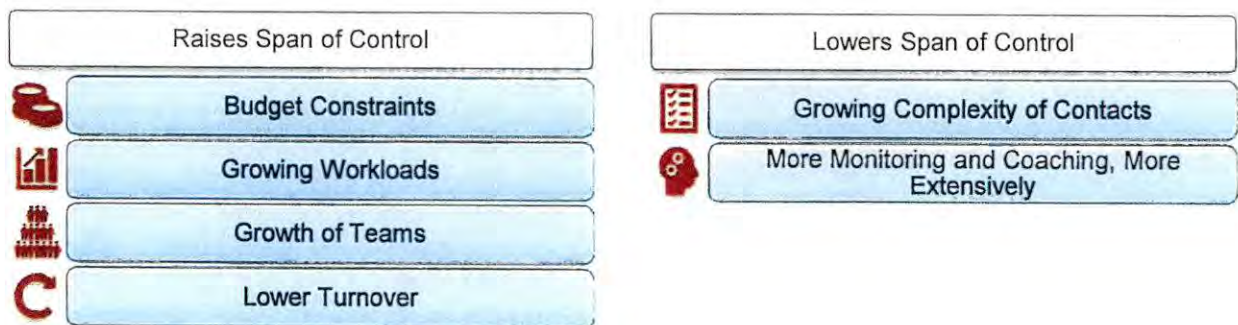| Raises Span of Control	Lowers Span of Control
Budget Constraints	Growing Complexity of Contacts
Growing Workloads	More Monitoring and Coaching, More Extensively
Growth of Teams	
Lower Turnover	

Figure 12: Span of Control

With the staffing configuration proposed for DMA, there are no concerns regarding the span of control because of the support the supervisors will have from the deputy director, operations manager, and training/QA coordinator. Although the supervisors are part of the count, they should be able to supervise while working and unplug to handle supervisory responsibilities when staffing allows for it. When supervisors are "working" and filling the role of a telecommunicator, they should handle a position that is less busy to allow both supervising and processing emergency calls/dispatching. In this scenario, it is important to ensure the supervisor continues to work positions in a rotating fashion to ensure skills retention to support staff. In the current recommendation, it is assumed that telecommunicators can fill the role of leads and would be in charge of directly supervising shifts when the supervisors are on leave. Given the call volume, both the 8-hour shift configuration and the 12-hour provide many opportunities for supervisors to unplug in order to provide dedicated supervisory duties or to handle supervisory tasks during shifts.

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[62] From NIMS/ICS. The Department of Homeland Security (DHS), coordinating with federal, state, and local governments established the National Incident Management System (NIMS). ICS falls under the Command and Coordination element of NIMS.
[63] "Staff to Supervisor Ratio." ICMI. https://www.icmi.com/resources/2012/Staff-to-Supervisor-Ratio

8-hour Shift Configuration

In an 8-hour shift configuration, there are three squads (groups) that support operations 24 x 7. Shifts are usually days, evenings, and overnights. As each shift must cover seven days a week, at any given time, about 28% of a shift should be on their scheduled days off. For example, a squad of 10 people covering seven days a week would mean three people are off on any given day in alignment with their respective schedules.

For an 8-hour shift configuration, maintaining the same configuration discussed above requires a minimum of 52 telecommunicators trained on the positions; to account for attrition, both natural and forced, a minimum of 65 telecommunicators would be necessary.

The same considerations as 12-hour shifts are necessary: providing coverage, allowing leave, and providing breaks and meals. Thus, an operational configuration could look like the following for an 8-hour shift:

Table 23: Operational Configuration – 8-hour Shifts

Operational Configuration		
Days	Evenings	Overnights
- Law enforcement dispatch – 4 - Fire/EMS dispatch – 2 - Backup/secondary call-taker – 1 - Law enforcement backup/secondary call-taker – 1 - Call-take/relief – 2	- Law enforcement dispatch – 4 - Fire/EMS dispatch – 2 - Backup/secondary call-taker – 1 - Law enforcement backup/secondary call-taker – 1 - Call-take/relief – 1	- Law enforcement dispatch – 4 - Fire/EMS dispatch/call-take – 2 - Backup/secondary call-taker – 1 - Law enforcement backup/secondary call-taker – 1 - Call-take/relief – 1

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Assuming leave time and regular days off, a shift complement would look like the following in this scenario:

Table 24: 8-Hour Operational Configuration – Staffing by Shift

Shift Complement		
Days	Evenings	Overnights
• Law enforcement dispatch – 4 • Fire/EMS dispatch – 2 • Backup/secondary call-taker – 1 • Law enforcement backup/secondary call-taker – 1 • Call-take/relief – 2 • On leave – 3 • Scheduled days off – 5-6	• Law enforcement dispatch – 4 • Fire/EMS dispatch – 2 • Backup/secondary call-taker – 1 • Law enforcement backup/secondary call-taker – 1 • Call-take/relief – 1.5 • On leave – 2 • Scheduled days off – 5-6	• Law enforcement dispatch – 4 • Fire/EMS dispatch/call-taker – 2 • Backup/secondary call-taker – 1 • Law enforcement backup/secondary call-taker – 1 • Call-take/relief – 1 • On leave – 2 • Scheduled days off – 5

Erlang C calculations, in concert with NENA calculations, are conducted to determine the telecommunicators needed to handle incoming calls for service. When averaging the total 911 calls, the result is 18 per hour, which requires three telecommunicators to meet call-answering standards. While 911 calls are not presented in averages, and there are peak hours of the day when call volume is greater, the combined 911 call volume results in 24 911 calls per hour.

There also is the need to consider calls received on 10-digit lines. Given that administrative calls are not tracked across all agencies in the DMA region, accurate analytics was unavailable. It is important to factor in administrative call volume workload for a consolidated scenario. It is anticipated that administrative calls would drop in a consolidated scenario, as many of the inbound calls received are administrative calls for the law enforcement agencies where the PSAPs reside. Call attendants and re-assigning the task of administrative call handling to alternative staff are two ways calls can be diverted from the PSAP, where employees are focusing on higher priority tasks.

Other Considerations

One position requires a minimum of 5.5 full-time employees or 7 full-time employees if 25% attrition is factored in. If there is a need to reduce the primary positions that are staffed 24 x 7, the following staffing calculations can be used:

- 8-hours shifts = 5.5 – 7 full-time employees
- 12-hour shifts = 5.1 – 6.5 full-time employees

For example, if Taylor PD opts out of the consolidation or delays joining, staffing could be reduced by 5.5 employees if that primary law enforcement channel is eliminated. Adjustments to the budget should be made accordingly.