Reno / Sparks / Washoe County / REMSA Regionalization Project

Regionalization Model & Recommendations Memorandum

FINAL

July 11, 2023

Prepared by:

"Unleashing the Power of Technology"
Federal Engineering®

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EXECUTIVE SUMMARY

Federal Engineering, Inc. ***(FE)*** is pleased to provide the Cities of Reno, Sparks, Washoe County, and Regional EmergRegionency Medical Services Authority (REMSA) with the following Regionalization Model & Recommendations DRAFT Memorandum.

FE worked with the Regionalization Working Group through facilitated workshops to define a common purpose for its regionalization effort. They expressed a commitment to the following:

> "Design a regional 911 call process that serves the community by prioritizing the user experience and appropriate deployment of resources through a reduction in duplicated processes, improved use of technology and resources, and simplified governance."

It can be tempting to choose a regionalization model designed to achieve the fullest degree of collaboration and consolidation possible from the beginning of the project. However, there are many events and factors that can impede the success of regionalization. The larger the scale and complexity of the transition, the more significant the time, effort, and human and financial resources it takes to implement, and the more it may be met with resistance from agencies who are not ready for, or do not want that, level of integration. It increases the risk that it will not survive the original scope design, and the model will no longer suit the region over time, which can result in a stranded investment.

This Regionalization and Recommendations Memorandum is structured into two sections. First, the primary Memorandum with ***FE's*** recommendations and the core information to inform the basis for the guidance provided. Second, an Appendix offers additional background information to provide further context and assist in the process as the agencies progress toward a regionalized model.

The basis for ***FE's*** recommendations being submitted for consideration by the Cities, County, and REMSA took into consideration the following:

- The goals and objectives of the executive leadership from the City of Reno, Washoe County, City of Sparks, and REMSA.

- ***FE's*** informed opinions based on the collective experience and knowledge of public safety operations, industry best practices, and applicable standards.

- ***FE's*** observations, conclusions, and recommendations based on information provided by the Regionalization Committee and their collectively defined regionalization vision for success.

Key Recommendations

FE provides the following recommendations supporting a progressive approach to regionalization, beginning with implementing the foundational model required to achieve and support regionalization. Additional details on each of the recommendations and the basis for consideration are included in Section 3 – Recommended Regionalization Model.

RECOMMENDATION 1: Continue to build on the considerable collaboration among the stakeholders throughout the regionalization committee. Several examples are highlighted in Appendix A of this report.

RECOMMENDATION 2: Execute the recently created agreement developed to support the governance model to implement a shared Hexagon Computer Aided Dispatch (CAD) system.

RECOMMENDATION 3: Implement regionalization using a phased approach and beginning with the foundational model required to support it as defined by stakeholders. Each phase after that should work toward incrementally increasing the collaboration and consolidation of 9-1-1 call answering, call processing, dispatch, and response in the region to the limits that the system will support, up to and including full consolidation.

The best regional model is built and implemented in this manner, executed *with* agencies instead of *to* agencies, and provides the foundation and process to implement, integrate, assess, and revise before working toward the next iteration.

RECOMMENDATION 4: Virtually consolidate all four Emergency Communication Centers (ECCs) to support the foundational regionalization model. Virtual consolidation includes shared or integrated/interfaced phone, CAD, and radio technology at a minimum, to

create the interoperability necessary for answering and processing each other's calls and dispatching closest most appropriate fire/medical resources.

RECOMMENDATION 5: Prioritize the caller's experience over protecting existing business practice. Where change is required, implement business processes that eliminate multiple transfers of a 9-1-1 call and allow each of the three primary PSAPs to process each other's emergency calls. In the case of EMS calls or Truckee Meadows Fire calls, the 9-1-1 call should be transferred without delay to REMSA. Until there is technology interfaced between REMSA to efficiently and accurately share call information, any delay in transferring these calls to REMSA in the current system introduces additional time and risk for call processing and response. This does not include times REMSA requires back up call processing and EMD from one of the primary PSAPs (Reno or Washoe County).

RECOMMENDATION 6: Provide contingency and backup support to REMSA, providing callers with EMD support and instructions in the primary PSAPs. Review and, where appropriate, make the necessary changes required to the Washoe County Health District's Franchise Agreement with REMSA. Closely evaluate the contingency model and implement changes that emphasize the caller's experience and delivery of the best level of emergency care.

RECOMMENDATION 7: Engage the legal resources needed to evaluate and revisit agreements that exist today which will have a direct impact on regionalization. Review both formal and informal, e.g., automatic aid agreements, Franchise Agreement, and others that may exist. ***FE*** has reviewed some of these documents and is aware through its research that other jurisdictions in similar situations have successfully regionalized. They have done so using Joint Powers Authority or other intergovernmental agreements to address the unique complexities of the public/private partnership relationships. The unique challenges these partnerships require must rely on local and specialized legal expertise outside this evaluation's scope.

RECOMMENDATION 8: Standardize processes for gathering call volume, call answer and response metrics, and data amongst the four ECCs and fire/medical response agencies in order to analyze and report information effectively. Once a standardized approach and methodology are agreed upon, draft policies and procedures outlining how call statistics

and metrics should be calculated. Documenting how this information is captured and calculated, with prescribed review periods, is essential to validate success in the region.

RECOMMENDATION 9: Create response plans, procedures, and supporting technology to dispatch the closest, most appropriate fire/medical agency to calls in the City of Reno Fire, City of Sparks Fire, Washoe County, and Truckee Meadows Fire District jurisdictions. Moving forward with this recommendation will require implementing the new shared CAD system and/or a CAD-to-CAD interface as interim. Implementation also has applicability and benefit opportunities for law enforcement.

RECOMMENDATION 10: Align procedure and workflow across all ECCs to support regional call taking. Together with Washoe County, the City of Reno, and REMSA, the City of Sparks should train and implement Emergency Medical Dispatch (EMD) so that each center has aligned skills and processes available to support their community and the regionalized model.

RECOMMENDATION 11: The regionalization model should only include the four ECCs and response for fire and fire/medical incidents. Although law enforcement operations are essential services, the stakeholders identified that law enforcement would not be included in regionalization at this time. ***FE's*** supports this, as emphasis in regionalizing law enforcement response at this stage could slow the process and delay the introduction of key changes needed to build on the already exceptional level of service the individual ECCs each provide.

RECOMMENDATION 12: Solve the unintended competition for dispatch resources and staff across the agencies; there are only so many qualified candidates in the labor market in emergency communications. Find a way to collaborate across the region to better align wages and compensation for public safety communications employees across the ECCs.

In a fully consolidated ECC, these issues are resolved as all ECC employees would work for the same organization with one wage scale, compensation and benefits program applicable to all ECC employees, and equal access to training, development, and promotion. Competition in recruiting and retention is resolved; the labor market is impacted by one ECC rather than four competing ECCs.

RECOMMENDATION 13: Prepare individually and collectively for the CAD configuration changes and practices needed to eliminate manual processes and dispatch the closest appropriate fire/medical responder regardless of jurisdiction. The lack of technology and interoperability in the current system shifts the burden onto frontline and leadership staff in the ECCs and response agencies and puts public safety agencies and the public at risk.

Manual processes such as providing call information verbally from one ECC to another and having to enter data manually, and secondary notification of response requests from other ECCs via telephone or radio instead of electronically, especially combined with any element of lack of interoperability among agencies, is fraught with risk and inefficiency and does not align with the recommended regional model to prioritize user experience.

RECOMMENDATION 14: An interfaced CAD between REMSA ECC and the other three ECCs allows for programming fire/medical response plans in CAD that are automated and allow efficient, electronic call sharing and dispatch of closest fire resource among the ECCs. With a 27-month implementation for the new shared CAD system, CAD-to-CAD provides a technically viable solution and could be repurposed with the new CAD solution to other agencies.

RECOMMENDATION 15: Once the regional model and recommendations have been decided, create an action plan that includes capital and operational costs for implementing any new software, hardware, process, staffing or other components that require funding. Should “regionally required or shared” costs arise out of the regional model implementation, a costing model can be agreed and applied among parties through a governance agreement.

RECOMMENDATION 16: Finally, in the progressive regionalization approach, ***FE’s*** recommended final phase outcome is to achieve consolidation of 9-1-1 call answering, call processing, dispatch, and response in the region, to the fullest extent possible. This can include a total consolidation of ECCs, and response agencies should the conditions and political will support it.

Consolidation creates massive efficiency in operations and service delivery across the region. However, consolidation doesn’t create “cost savings” on the front end of implementation, but savings will be realized over time. In a consolidated model, the four

ECCs, response agencies, and citizens can fully realize the benefits of a collaborative regionalized emergency services delivery model from 9-1-1 call receipt until responders have cleared from a call and returned to service.

A detailed overview of the regionalization recommendations and recommendations to support the gap analysis can be found in the remainder of this report and its appendices. Wherever applicable, the recommendations are supported by industry standards and best practices in public safety.

1. Methodology

This *Regionalization Model and Recommendations Memo* is a follow up report to the *Current Conditions and Gap Analysis Report* submitted in March 2023.

Federal Engineering understood the Request for Proposal was for *"consulting services to support a regional working group to facilitate regional collaboration opportunities for Fire, EMS, and Dispatch services including but not limited to, enhanced protocols for the dispatch of emergency services using 911 system-based factors such as deployment of nearest resources to emergency calls and other joint opportunities".* As outlined in the Gap Analysis and Current Situation Report, the focus was on four areas:

- *Governance – how services will be governed and how policy decisions will be made.*
- *Organization – what is included in the service, dispatch, fire, EMS.*
- *Foundation - Operational considerations including configuration, shifts, station standards, etc.*
- *Funding - How the organization will be funded and the impact to jurisdictions.*

Following the onsite visits, review of the Current Conditions and Gap Analysis, ***FE*** continued its research and participated in discussions with executive leadership in preparing its recommendations. ***FE*** employed a user-driven approach to gathering stakeholder needs and requirements. In the second week of the site visit, a two-day workshop was held to facilitate discussion, gather input, and gain a better understanding of each agency's current conditions and future needs in a regional model.

1.1 Agreed Project Purpose

As stated in the Executive Summary, the Regional Working Group have confirmed the agreed project purpose as:

> *"Design a dispatch and regional 911-call process that serves the community by prioritizing the user experience and the appropriate deployment of resources through a reduction in duplicated processes, improved use of technology and resources, and simplified governance."*

Additionally, stakeholders provided the following clarifying information:

- The chosen regionalization model *must be caller/citizen* focused and provide the highest level of customer service.
- It must provide continuity in the call taking process and reduce the number of times a 9-1-1 call is transferred by providing the necessary support at the first instance a call is answered whenever possible.
- The appropriate deployment of resources means the closest, *most appropriate* units are sent, and that "most appropriate" means different things for each agency, call type, priority level, and coverage in their community.
- At this phase, regionalization will not include law enforcement regional response. It will include the four ECCs and response for fire and fire/medical incidents throughout the cities and County.

Project challenges and approach:

- Sending the closest, most appropriate resource to fire and fire/medical calls.
- Align the chief complaint of the call with the right resources and priority level – right resources, the right way, at the right time.
- Prioritize the caller's experience over protecting business practices.
- Breakthrough jurisdictional boundaries; use the system in a unified manner.
- Create consistency among ECCs and response agencies by creating a standardized approach.
- Leverage our existing strengths in a standardized and efficient approach.
- Simplify the call taking and dispatch process among ECCs to improve how it works for citizens and responders.

- Address the fractured 9-1-1 system; minimize the number of times a caller is transferred by enabling any primary 9-1-1 PSAP in the region to take the call and enter it into CAD without transferring to another ECC.
- Eliminate policy issues.
- Decrease or eliminate duplication of processes across ECCs and agencies.
- Staffing challenges resulting from competing operations with varied compensation (salary and benefits), disparity in workload.
- Leverage state-of-the-art technology and best practice in creating a regional model.

2. Recommended Regionalization Model

Definitions

The following definitions are provided to clarify terminology used throughout the Recommendations Memorandum.

- Regionalization: refers to the collaboration of efforts to answer, process, and respond to emergency calls across the region. This involves all primary stakeholder municipalities and/or entities and the emergency communications centers and fire response agencies within them.

- Consolidation: refers primarily to a virtual, co-located, partial or full combining of emergency communications centers in the region, but may also apply to fire response agencies in some situations.

- ECC: refers to an Emergency Communications Center, which includes the City of Reno, City of Sparks, Washoe County and REMSA centers. It's the all-encompassing industry term that describes both 9-1-1 call answer functionality as either a primary or secondary PSAP, and call processing and dispatch for law enforcement, fire, or EMS. Most ECCs perform other ancillary services and support for the public safety agencies they serve, in addition to 9-1-1 call answer and dispatch.

- Primary PSAP: refers to the ECCs who receive 9-1-1 calls directly from the public; they are the first point of contact for a caller needing 9-1-1. The primary PSAP will triage the call to determine the caller's location and which public safety response agency is required: police, ambulance, fire, or a combination thereof. Primary PSAPs are often also ECCs who process calls and dispatch for police, fire or EMS agencies. Primary PSAPs include City of Reno, City of Sparks, and Washoe County ECCs; each one processes and dispatches calls for police and fire.

- Secondary PSAP: refers to ECCs who receive 9-1-1 calls transferred from a primary PSAP, and who process calls and dispatch police, fire or EMS agencies. Secondary PSAPs in the region include REMSA who process and dispatch EMS and fire calls.

- Foundational Regionalization Model: describes the first recommended phase of regionalization implementation. This definition encompasses the necessary operational, technology and process required, at a minimum, to support regionalization as defined by Regional Working Group and Executive Leadership teams.

- Warm Transfer: when a call taker in a PSAP transfers a 9-1-1 call to another PSAP, stays on the line with the caller until the receiving PSAP answers, and introduces the call to the receiving call taker. Typically, the location verification, nature of the call, pertinent call details, and caller's name if known is provided to the receiving call taker.

The Fire/EMS/ECC Regional Working Group is continually working together to address regionalization action items from our first workshop earlier this year, and there is much support for forward movement in implementing a regional model. In addition, the Fire Chiefs have been discussing response challenges, and the ECC Managers have been meeting regularly to solve the near-term challenges. For example, ECC leaders have developed a Change Management Plan which will be essential to successful implementation of a regional model.

What is known from experience is that no two jurisdictions are alike. There are several pathways available to achieve regionalization, each dependent upon operational, political, economic, and environmental conditions present and to what extent the municipalities would like to integrate or consolidate their operations. Consequently, over time, any one of these conditions could change for any stakeholder or agency and impact their ability or desire to meet an aggressive regionalization model.

That said, based on observations, interviews, and meetings with executive leadership and the Regional Working Group, there are significant issues and challenges that in ***FE's*** experience can be minimized and even eliminated by pursuing regionalization.

The best regional model is one that is built and implemented in a phased approach, that is executed *with* agencies instead of *to* agencies, and provides the foundation and process to implement, integrate, assess, and revise before working toward the next iteration. A phased approach with regular system checks and future casting must be

conducted at key points along the way to ensure long term sustainability. This is not to say that the region should begin with the first phase and stay there. To the contrary, the region should implement the first phase, and continue taking steps toward further integration and consolidation to support its immediate and long-term needs.

2.1.1 Foundational Regionalization Model

As defined above, the "foundational regionalization model" means the minimum necessary operational, technology, and governance components required to achieve regionalization. By leveraging virtual consolidation of all ECCs, the technology and interoperability exist to seamlessly create and implement system and business rules in shared 9-1-1 call taking and processing, CAD, mapping, GPS, and technology to support automatic recommendation in CAD for dispatch of closest, most appropriate fire agency response.

FE provides the following recommendations to support implementation of the foundational regionalization model.

In this model each of the three Primary PSAPs will process any 9-1-1 calls received for each other's ECCs when they are:

- Due to a wireless 9-1-1 call being routed to the incorrect PSAP.
- Contingency routing among primary PSAPs: call surge or overflow is occurring at the primary PSAP that the 9-1-1 call was intended for and the call is instead routed to a neighboring PSAP in the region.
- Any other instance or condition where a 9-1-1 call is received for another primary PSAP within the region (i.e.: transferred from an out of region PSAP to the incorrect PSAP) in order to avoid transferring the call multiple times, and to provide the highest level of service possible to the caller.
- The exception to this rule is in the case of EMS calls or Truckee Meadows Fire calls, the 9-1-1 call should be transferred without delay to REMSA. Until there is technology interfaced between REMSA to efficiently and accurately share call information, any delay in transferring these calls to REMSA in the current system

introduces additional time and risk for call processing and response. This does not include times REMSA requires back up call processing and EMD from one of the primary PSAPs (Reno and Washoe County).

FE does *not recommend* that ECCs dispatch for each other in this first phase of a regional model, and that the focus be on call taking, call processing and regional fire response.

The desire is to move the regional model forward as soon as possible to address the highest priority challenges:

- Avoid multiple transfers of a 9-1-1 call.
- Allow ECCs who are primary PSAPs to process each other's calls.
- Provide contingency and back up support to REMSA providing callers with EMD support and instructions in the primary PSAPs when necessary.
- Create response plans, procedure and supporting technology to dispatch the closest, most appropriate fire agency to calls in the City of Reno Fire, City of Sparks Fire, Washoe County and Truckee Meadows Fire District jurisdictions.

In the foundational model, there will not be significant impacts to workload. Primary PSAP ECCs will process any 9-1-1 calls received for other ECCs and enter the call in CAD rather than transferring them to the ECC having jurisdiction. ECCs will not be dispatching calls for other ECCs in the first phase of implementation.

Aligned procedure and workflow across all ECCs to support regional call taking.

- ECCs must collectively review call taking procedures in the centers and compare them against each other to determine a single call taking, triage/assessment/caller interrogation.
- All ECCs use Emergency Fire Dispatch (EFD), therefore fire call taking is less problematic. However, each ECC has its own police call taking process that is either a combination of policy and procedure-based police call taking and dispatch, or IAED Emergency Police Dispatch (EPD) protocol based.

- A key factor in the first workshop was that stakeholders did not want a degradation of service, and that not all ECCs answer 9-1-1 calls the same way nor process and triage police calls the same. It is necessary to agree and create a single process across ECCs for 9-1-1 call answer and call processing to ensure standardized and consistent application in a regional model.

- CAD workflow business rules must be reviewed to allow for the continued triggers where calls taken by neighboring ECCs who share CAD technology can be created in another CAD but will drop into the ECC having jurisdiction's CAD to be dispatched.

Technology

- Shared CAD with ability to seamlessly enter an incident for another ECC, provide support to the caller, and have that incident and any additional call updates be provided electronically to the ECC having jurisdiction.

- That automated process and technology be in place to identify when any of the primary or secondary ECCs are in call surge and do not have call takers to receive the next incoming call. That this system be programmed in the 9-1-1 telephone system and also be both visually and audibly displayed in all ECCs by way of a dashboard, lights, and audible tones.

- We recognize that in the co-located Washoe County and Reno ECC, there is technology in the room that provides a visible dashboard of this nature, and each agency is able to see each other's call volume and workload, but it does not include City of Sparks or REMSA call data. Likewise, City of Sparks and REMSA ECCs do not have access to this info in other ECCs either. The optimal solution is to have a visible dashboard in each ECC listing all four ECCs call volume/call load and capacity in real time on one screen. This provides the highest level of situational awareness for ECCs to know when calls are waiting to be answered and contingency procedures should be enacted. Particularly because only two of the four ECCs are co-located and otherwise would not know if contingency routing and call processing measures were necessary.

- If the above is not possible, or it will be a length of time before implementing is possible, a minimum alternative solution is to implement a system indicator or automated messaging on REMSA's 9-1-1 phone system to advise any primary PSAP transferring a caller to them that "*all emergency call takers are on the line with callers... please stay on the line*". In these instances, WC and City of Reno ECCs either do not attempt to transfer the call or cancel the call transfer and maintain custody and begin EMD provision.

Workflow for 9-1-1 calls requesting EMS.

At the time of this report writing, the Washoe County ECC is providing contingency/back up support for REMSA whenever they are in call surge/overflow and there are no call takers available to receive the next incoming call for EMS. Washoe County ECC processes the call using EMD and enters the information into their CAD, then contacts REMSA Dispatchers via a dedicated radio channel to provide call info so that REMSA can enter the call in their CAD and dispatch resources to the call.

The City of Reno implemented EMD in early May and is providing contingency support for REMSA in the same fashion when required.

The City of Sparks is interested in providing contingency EMD call processing for REMSA but are evaluating their staffing levels to ensure it can be supported. They will not be deciding on EMD implementation until a later date.

In the foundational model, for secondary PSAP/REMSA calls, it is recommended that:

- Washoe County and Reno ECCs continue providing contingency EMD call processing when required, and as discussed and agreed upon by all parties.

- Review and decide EMS call contingency procedure to determine when primary PSAPs maintain custody of the call to provide EMD, and which primary PSAPs will be equipped with EMD capabilities in their centers to provide it.

- For EMS calls transferred by City of Sparks, the call taker would either remain on the line until REMSA can answer the call, or if REMSA is experiencing a surge of calls and is unavailable, and the call is critical in nature/there are imminent life

threats, it is recommended that Sparks transfer the call to Washoe County or Reno ECC for EMD provision and pre-arrival instructions. Stakeholders should discuss and decide policy and workflow procedure for this situation.

- The end goal would be for all four ECC's 9-1-1 call handling solutions to be integrated and designed with contingency routing and threshold rules. In this set up, whenever a 9-1-1 call requiring EMS is transferred from a primary PSAP, the system will first check if REMSA has an available call taker in the system to send the call to, and if not, will transfer to the ECC with most availability for taking the call (if that ECC is equipped with EMD call taking). We recommend investigation of the 9-1-1 infrastructure, telephony, and call handling solutions at the ECCs to determine if this set up is possible.

Fire response in the Foundational Regionalization model should be implemented as follows:

- Stakeholders must define what the closest, most appropriate unit means for their respective agencies; it can mean different things and have varying response plans from one agency to the next. Considerations for determining response plans in each agency can be based on factors such as the nature of the call, the priority/acuity level of the call, what the current resource availability is in the system for that agency or response area, and what is the threshold for ensuring community coverage across the region when fire/medical agencies are recommended for dispatch to a neighboring jurisdiction.

- Interoperability must exist across all ECCs CAD and radio technology. The CAD systems in each ECC must have the ability to "see" all the fire response agencies available, then recommend the closest most appropriate unit based on each agency's pre-determined response plans. This dispatch model cannot be implemented effectively until this level of interoperability and technology is in place. This is best achieved through a common CAD/shared CAD in all agencies.

- The response plans will be dynamic and can even be influenced by season or time of day for agencies. The response plans and condition requirements must be programmed in CAD to recommend the correct resource at the dispatch point.

There should never be a requirement for ECC staff to manually assess each call and then determine what factors are present to manually dispatch units. The response plans are complex, and it is not possible to dispatch resources efficiently or effectively in this manner. It must be an automated, CAD system recommended response based on programmed business rules and response plans.

- To implement closest most appropriate unit dispatching, the ability for CAD to "dispatch by GPS location" rather than response zone or street network must be implemented, and (AVL) Automatic Vehicle Location technology must be in place in each fire response agency's frontline units.

After post-implementation of this model, once the regional model has shown stable performance, and any post implementation operational, technology, or governance issues have been addressed, the region can assess and determine the best next path if a larger degree of regionalization or consolidation is desired.

2.1.2 Progressive Regionalization Model

In a progressive regionalization model, the recommended final phase outcome is to achieve consolidation of 9-1-1 call answering, call processing, dispatch and response in the region, to the fullest extent possible. This can include up to a full consolidation of ECCs and response agencies should the conditions and political will support it. It should also consider the service delivery model required to achieve this, and benefits to the community, including economic and operational factors.

Consolidation creates massive efficiency in operations and service delivery across the region. Consolidation doesn't create "cost savings" on the front end of implementation, but savings will be realized over time. In a consolidated model, municipalities and citizens can fully realize the benefits of a collaborative regionalized emergency services delivery model from 9-1-1 call receipt until responders have cleared from a call and returned to service.

3. Recommendations

The following sections identify Key Recommendations for regionalization and gap analysis recommendations for addressing gaps as identified in the *Current Conditions and Gap Analysis* report. ***FE*** has included background of the associated gaps, and the supporting information, applicable industry standards and best practice, and our team's expertise and experience to endorse recommended actions to address them.

3.1 Key Recommendations

FE provides the following key recommendations in support of a progressive approach to regionalization, to commence with implementation of the foundational model in the first phase.

RECOMMENDATION 1: Continue to build on the considerable collaboration among the stakeholders throughout the regionalization committee. Several examples are highlighted in Appendix A of this report.

RECOMMENDATION 2: Execute the recently created agreement developed to support the governance model to implement a shared Hexagon Computer Aided Dispatch (CAD) system.

RECOMMENDATION 3: Implement regionalization using a phased approach and begin with the recommended foundational model, which is necessary to support regionalization as defined by stakeholders. Each phase after that should work toward incrementally increasing the collaboration and consolidation of 9-1-1 call answering, call processing, dispatch, and response in the region to the limits that the system will support, up to and including full consolidation.

The best regional model is built and implemented in this manner, executed *with* agencies instead of *to* agencies, and provides the foundation and process to implement, integrate, assess, and revise before working toward the next iteration.

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for answering and processing each other's calls and dispatching closest most appropriate fire resources.

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RECOMMENDATION 7: Engage the legal resources needed to evaluate and revisit agreements that exist today which will have a direct impact on regionalization. Review both formal and informal, e.g., automatic aid agreements, Franchise Agreement, and others that may exist. ***FE*** has reviewed some of these documents and is aware through its research that other jurisdictions in similar situations have successfully regionalized. They have done so using Joint Powers Authority or other intergovernmental agreements to address the unique complexities of the public/private partnership relationships. The unique challenges these partnerships require must rely on local and specialized legal expertise outside this evaluation's scope.

RECOMMENDATION 8: Standardize processes for gathering call volume, call answer and response metrics, and data amongst the four Emergency Communications Centers (ECCs) and fire response agencies in order to analyze and report information effectively. Once a standardized approach and methodology are agreed upon, draft policies and procedures outlining how call statistics and metrics should be calculated. Documenting

how this information is captured and calculated, with prescribed review periods, is essential to validate success in the region.

RECOMMENDATION 9: Create response plans, procedures, and supporting technology to dispatch the closest, most appropriate fire agency to calls in the City of Reno Fire, City of Sparks Fire, Washoe County, and Truckee Meadows Fire District jurisdictions. Moving forward with this recommendation will require implementing the new shared CAD system and/or a CAD-to-CAD interface as interim.

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RECOMMENDATION 12: Solve the unintended competition for dispatch resources and staff across the agencies; there are only so many qualified candidates in the labor market in emergency communications. Find a way to collaborate across the region to better align wages and compensation for public safety communications employees across the ECCs.

In a fully consolidated ECC, these issues are resolved as all ECC employees would work for the same organization with one wage scale, compensation and benefits program applicable to all ECC employees, and equal access to training, development, and promotion. Competition in recruiting and retention is resolved; the labor market is impacted by one ECC rather than four competing ECCs.

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appropriate fire/medical responder regardless of jurisdiction. The lack of technology and interoperability in the current system shifts the burden onto frontline and leadership staff in the ECCs and response agencies and puts public safety agencies and the public at risk.

Manual processes such as providing call information verbally from one ECC to another and having to enter data manually, and secondary notification of response requests from other ECCs via telephone or radio instead of electronically, especially combined with any element of lack of interoperability among agencies, is fraught with risk and inefficiency and does not align with the recommended regional model to prioritize user experience.

RECOMMENDATION 14: An interfaced CAD between REMSA ECC and the other three ECCs allows for programming fire/medical response plans in CAD that are automated and allow efficient, electronic call sharing and dispatch of closest fire resource among the ECCs. With a 27-month implementation for the new shared CAD system, CAD-to-CAD provides a technically viable solution and could be repurposed with the new CAD solution to other agencies.

RECOMMENDATION 15: Once the regional model and recommendations have been decided, create an action plan that includes capital and operational costs for implementing any new software, hardware, process, staffing or other components that require funding. Should “regionally required or shared” costs arise out of the regional model implementation, a costing model can be agreed and applied among parties through a governance agreement.

RECOMMENDATION 16: Finally, in the progressive regionalization approach, ***FE’s*** recommended final phase outcome is to achieve consolidation of 9-1-1 call answering, call processing, dispatch, and response in the region, to the fullest extent possible. This can include a total consolidation of ECCs, and response agencies should the conditions and political will support it.

Consolidation creates massive efficiency in operations and service delivery across the region. However, consolidation doesn’t create “cost savings” on the front end of implementation, but savings will be realized over time. In a consolidated model, the four (4) ECCs, response agencies, and citizens can fully realize the benefits of a collaborative

regionalized emergency services delivery model from 9-1-1 call receipt until responders have cleared from a call and returned to service.

3.2 Gap Analysis Recommendations

The following section provides ***FE's*** recommendations to address the specific gaps that were identified in the Current Conditions and Gap Analysis Report.

3.2.1 Operations and Technology

During our workshop in February, ***FE*** supported the Regional Working Group to develop action plans to address gaps with more immediately attainable results toward regionalization that could be achieved without any major technology, cost, or process required. In the same fashion, we have created the recommendations for Operations and Technology gaps in a similarly tabled format that makes them easier to reference and add action items to during implementation planning.

Whenever recommendations in the table below refer to the Franchise Agreement, or additional recruiting, training and staffing information, they can be found in *Appendix A – Background Information*.

Table 1 Operational and Technology Gaps/Recommendations

Operational Area	Gap	Recommendation
911 Call Taking	● Each ECC has its own procedure for greeting and triage when the 9-1-1 call is answered. Some ask if the caller requires police, fire, or EMS first and others ask for the address first before triaging service type. ● If the call needs to be transferred to another ECC, not all ECCs provide a "warm transfer" where the caller is introduced and any information already provided such as address, chief complaint, or other pertinent information is passed along. When a warm transfer does not occur, the caller is asked the same questions again by the receiving PSAP and must provide it once more. This adds time and risk to the call and is often a negative experience for the caller who feels they are not being heard, and that help is not being sent while they provide their information again. In some cases, 9-1-1 callers are transferred up to three different times in one call until they arrive at the PSAP that can assist them. ● Each agency uses Emergency Fire Dispatch (EFD) protocols, and fire call processing should already be standardized among all four ECCs. ● There is no standardized approach to processing police calls. One agency uses EPD, and the other two use their own policy and procedures to guide police call taking. Each agency has certain criteria it must ask callers that responding officers require, and it is not the same for each agency. This will need to be addressed and standardized for regionalization.	<u>Standardize Process</u> ● Each agency uses Emergency Fire Dispatch (EFD) protocols, and fire call processing should already be standardized among all four ECCs. ● There is no standardized approach to processing police calls. One agency uses EPD, and the other two use their own policy and procedures to guide police call taking. Each agency has certain criteria it must ask callers that responding officers require, and it is not the same for each agency. This will need to be addressed and standardized for regionalization.
Call Taking and Dispatch Protocols	● Each ECC uses one or more of the International Academies of Emergency Dispatch (IAED) emergency dispatch protocols, which include scripted interrogation, standardized triage, and pre-arrival instructions to provide callers during life threatening or high-risk situations. ○ All ECCs use EFD for fire calls. ○ REMSA, Washoe County and Reno ECCs use EMD for medical calls.	***FE*** recommends implementation of standardized scripted protocols across the region's ECCs for police, fire and medical calls provides the quickest and easiest method of ensuring that each ECC is taking calls in the same standardized format. This supports the regional model purpose of providing excellence in customer experience and in service delivery: ● Design and agree to a regional call taking process that is standardized and supports each ECCs critical information gathering needs without

	○ Washoe County ECC uses EPD for police calls. ● Agency specific policy and procedure guides police call taking in Sparks and Reno, and each ECC policy and procedure differs in what is required to be asked of callers. ● Differing practice in call taking was brought up at several of the ECCs site visits as concern in regional call taking.	overcomplicating the process. ● Although law enforcement is not the focus of this regionalization effort, call taking standardization will help to streamline processes in the ECCs for consistency. EFD is used in all ECCs for fire call processing making a standardized approach simple. However, police call taking differs across the primary PSAP ECCs. Washoe County ECC uses EPD, and Reno and Sparks ECCs are guided by police call taking procedures for processing police calls. The benefits in support of regionalization include: ● Callers receive the same level of service regardless of which ECC answers their call. ● Each ECC will have standardized pre-arrival instructions to provide callers for life threatening police, fire, or medical emergencies. ● Field responders receive the same consistency in information for police, fire, and medical calls regardless of which ECC is taking the call. ● Quality assurance and quality improvement (QA/QI) is much easier to measure and achieve regionally among ECCs when they are using the same process. ● Until the time that protocol implementation is adopted or implemented by all ECCs, measures must be taken to address the current gaps in call taking process and procedure from one ECC to another. This is most prominent in police calls where EPD is only utilized in one ECC, adding to that, police call volume is highest in all ECCs and the need for alignment that much greater across ECCs who will be taking calls for each other.
EMS Call Taking at the Primary PSAPs	● Washoe County ECC is taking EMD calls as back up support for REMSA. During non-back up support operations, they also process any life imminent/ECHO calls identified at first receipt and are not transferring them to REMSA. However, stakeholders identified in the Current Conditions and Gap Analysis Report that this practice is contrary to REMSA Franchise obligations, as outlined in the contract with Washoe County District Board of Health.	As highlighted in Key Recommendation 5, regional stakeholders recognize the need and benefit to provide contingency/overflow and back up support for one another across the ECCs. That support includes backup support for the three Primary PSAP ECCs and for REMSA ECC where possible. ● At times, just as the primary PSAP ECCs do, REMSA experiences call surge that puts them over capacity and unable to answer incoming 9-1-1

	• The provision of regional medical dispatch is the responsibility of REMSA as outlined in the Franchise Agreement between REMSA and the Washoe County District Board of Health. • No formal agreement or process exists with agreed-upon procedures for EMD backup provisions. As appropriate, the ECC Managers should continue their work and align the EMD call-taking protocols for the backup call centers to standardize the delivery of these services to their communities. • It will be necessary to clearly define and standardize EMD call provision among ECCs. Will it be in a back-up capacity only or will it be for calls that are identified as ECHO during initial 9-1-1 call triage? • There is no CAD interface to transfer call information electronically. Processing ECHO medical calls at a primary PSAP, outside of providing back up support, introduces delay in dispatching resources due to lack of efficient transmission of info electronically and risk of error in manual entry of call data. • REMSA is required to maintain accreditation level compliance for EMD as per the Franchise Agreement. Other ECC's have started or will soon begin processing EMD calls.	calls being transferred from the primary PSAPs/ECCs. During our site visit and at the current conditions and gap analysis report review, REMSA and Washoe County ECC were in discussion to formalize an agreed upon process for provision of back up support. Since that time Reno ECC has implemented EMD and will also provide back up support to REMSA for medical call taking. • Review and decide EMS call contingency procedure to determine when primary PSAPs maintain custody of the call to provide EMD, and which primary PSAPs will be equipped with EMD capabilities in their centers to provide it. • Note: Discussion and agreements to provide contingency/back up EMD support for REMSA were occurring prior to and/or being implemented during this project in the Washoe County and Reno ECCs. Washoe County, Reno and REMSA ECCs should monitor EMD call volume processed by Reno or Washoe County ECCs for any increased staffing/workload impacts outside of what was anticipated. This will help to identify any increased demand for services or staffing issues that may be occurring. • ECC Managers can discuss any additional support/EMD provision parameters with each other if necessary. If additional EMD call processing beyond back up support is desired, ECCs should review labor agreements for any out-of-scope work implications to impacted ECC staff and address potential labor issues. • For EMS calls transferred by City of Sparks, the call taker would either remain on the line until REMSA can answer the call, or if the call is critical in nature and there are imminent life threats, it is recommended that Sparks transfer the call to Washoe County or Reno ECC for EMD provision and pre-arrival instructions. Stakeholders should discuss and decide policy and workflow procedure for this situation.
Back-up REMSA Support	• Determine and formally agree to back up support procedures between REMSA and each PSAP.	***FE*** recommends that the managers of the ECCs continue to work on finalizing agreements for providing back up support on 9-1-1 calls requiring EMS, and that

	• Standardize/define the critical EMD calls that primary 911 ECCs should not transfer to REMSA, but immediately provide EMD and PAI's (while simultaneously contacting REMSA to dispatch resources).	Washoe County Health District be included should any adjustments to the Franchise Agreement be necessary to support it. • Agreements should include clearly defined procedures for when back-up support will be enacted for medical calls to ensure a standardized approach across participating ECCs and consistent service delivery to the public. • Evaluate Section 9.2 of the Franchise Agreement (found in Appendix A) regarding REMSA responsibility to maintain accreditation. ◦ ***FE*** has confirmed with the International Academy of Emergency Dispatch (IAED) that REMSA's Accredited Center of Excellence (A.C.E.) accreditation status will not be impacted by other ECCs providing EMD contingency/backup support who are not accredited. • It is a Franchise Agreement requirement of Section 5.2 Dispatch for REMSA to provide their share of a CAD-to-CAD interface and two-way communication and visualization of AVL data to allow for call and unit location information sharing to support the dispatch of closest most appropriate resources across ECCs. It is therefore necessary for all ECCs to expedite the implementation of this technology and provide their share of the interface in order to have interoperability across all ECCs. This is especially important for EMS call processing at primary ECCs where call information can be provided electronically reducing risk in incorrect data entry of call information, reducing time for REMSA to enter call information and dispatch resources, and reducing EMS response time to the scene. • The CAD to CAD and two-way communication and visualization of AVL provide the necessary interoperability to allow the entire regional ECC CAD systems to view status and location of units and allows response plans to be programmed to recommend the closest most appropriate fire resources to calls.
Fire Response	Enhanced Aid, Auto Aid, and Mutual Aid	• Stakeholders must define what the closest, most appropriate unit means for

	• Response plans to support aid agreements are programmed in the Reno, Washoe County and Sparks CAD because they share a CAD system. Truckee Meadows Fire (TMF) is dispatched by REMSA on a CAD that is separate from the other three ECCs; the two CADs are not interfaced with each other. Any time TMF is required for aid response by Reno or Sparks Fire, or vice versa, the ECCs must phone each other to request support. This creates additional time in call processing, dispatch and response and introduces risk through the potential for manual data entry issues as information is provided verbally. Closest, Most Appropriate Unit • A significant catalyst for the regionalization project is the lack of interoperability between ECCs and response agencies. In many cases, it could be that one fire service has units closer to a call than the fire service having jurisdiction does. However, because of the lack of situational awareness via shared CAD and unit status information, there is no way to view all fire units available for response across the region. TMF is dispatched by REMSA on a CAD that is separate from the other three ECCs. The CADs are not interfaced with each other. This makes programming response for TMF and Reno or Sparks Fire based on "closest, most appropriate unit" response plans and run orders impossible until the systems are able to see and communicate with each other through an interface or shared CAD system, which includes unit status, GPS-based dispatch settings, aligned mapping, and agreed procedure to support it. Jurisdictional Boundary Issues • In the interim, there may be response plans/run orders that can be configured to address some of the jurisdictional boundary response issues until closest, most appropriate unit programming is possible through a shared or interfaced CAD and this should be investigated. It was added to the list of "immediate action items" for regionalization and as of the last regional meeting update, the group plans to investigate this in April.	their respective agencies; it can mean different things and have varying response plans from one agency to the next. Considerations for determining response plans in each agency can be based on factors such as the nature of the call, the priority/acuity level of the call, what the current resource availability is in the system for that agency or response area, and what is the threshold for ensuring community coverage across the region when fire agencies are recommended for dispatch to a neighboring jurisdiction. • Interoperability must exist across all ECCs CAD and radio technology. The CAD systems in each ECC must have the ability to "see" all the fire response agencies available, then recommended the closest most appropriate unit based on each agency's pre-determined response plans. This dispatch model cannot be implemented effectively until this level of interoperability and technology is in place. This is best achieved through a common CAD/shared CAD in all agencies. • To implement closest most appropriate unit dispatching, the ability for CAD to "dispatch by GPS location" rather than response zone or street network must be implemented, and (AVL) Automatic Vehicle Location technology must be in place in each fire response agency's frontline units. • The response plans will be dynamic and can even be influenced by season or time of day for agencies. The response plans and condition requirements must be programmed in CAD to recommend the correct resource at the dispatch point. There should never be a requirement for ECC staff to manually assess each call and then determine what factors are present to manually dispatch units. The response plans are complex, and it is not possible to dispatch resources efficiently or effectively in this manner. It must be an automated, CAD system recommended response based on programmed business rules and response plans. • Closest most appropriate fire response dispatching must not be implemented until the technology and interoperability exists to support it.
Fire Response to EMS Calls	• In the case of fire/medical co-response to incidents, an interfaced CAD between REMSA ECC and the ECCs that dispatch fire services would provide an opportunity for programming response plans in CAD that are automated and allow efficient, electronic call	• Collect statistics and data for the frequency in which this occurs. Procedures should be closely reviewed to investigate the ability to augment

	sharing and dispatch among the ECCs. ● Reno and Sparks Fire respond to a number of predetermined medical incident types within their jurisdictions. The ECC will send a fire response, based on 9-1-1 utterance of the chief complaint, as soon as the caller location and phone number are verified while simultaneously transferring the caller to REMSA. The ECC transfers the call to REMSA and waits for voice connect and address confirmation prior to disconnecting; the final determinant or response level is not known. ● The ECCs use negative 10-76 (or negative 76) as the code to advise that fire is not responding on an EMS call with REMSA as a result of predetermined call types established within each agency (from REMSA), If any ECC, including REMSA, does not update final priority or any change in call/patient status, a fire response may continue to the scene, and make patient contact without realizing this is no longer a call that needs EMS or medical assistance. ● Once fire makes patient contact, they must remain on scene and EMS must attend to assess and confirm no treatment or transport required. In these instances, it occupies both fire and EMS resources that would have otherwise been available for emergency calls.	this practice today, and instead of dispatching fire at initial 9-1-1 call receipt and transfer, wait until REMSA processes the call and contacts the ECC to confirm an EMS call, provides the final determinant and priority level. This would significantly decrease the number of times a fire response occurs when there is no EMS response to a call. The following items were identified as near-term action items and are being worked on by the Regionalization Working Group. ● Instead of responding with lights and sirens, fire could respond to regular traffic to the scene and not attend and make patient contact until confirmation is received from EMS on determinant and priority, or if updated information is received while enroute, adjust the response level accordingly or cancel and return to station. ● Implement shared CAD or interim CAD to CAD interface to resolve the lack of timely information exchange between centers and reduce the need to dispatch fire immediately without waiting for further details. ● Once shared CAD or an interface is implemented, response plans can be created for each fire agency based on EMD call determinants. Once a determinant is reached in the call taking process, if fire response is required, the response plan will trigger the call to be sent to the ECC who dispatches that fire department. The call can be accepted in CAD, fire units can be dispatched, and real time updates between the call taker and dispatcher CADs, irrespective of what ECC is processing the EMD call, will be provided.
Staffing	● Each of the ECCs has expressed concerns with recruiting and retention issues in their centers. The public safety communications industry is experiencing a staffing crisis of epic proportions across the continent. While the four ECCs are also subject to this issue, there are a few additional compounding factors that add to recruiting, retention, and short staffing issues.	● Conduct a comprehensive staffing analysis. It is recommended that the agencies standardize their statistical practices for call volumes in all four (4) ECCs prior to a full analysis being conducted. A high-level staffing review has been completed and is located in Section X: Staffing Analysis of this memo. A comprehensive Staffing Analysis requires specific sets of

	● ECC leaders shared that employees from an ECC within the region routinely apply for and are hired by other ECCs within the region. This is largely due to higher wages. ● Concerns from frontline staff have already been brought forward regarding the workload changes that regionalization may bring and the disparate wages and compensation across the ECCs.	comparable data. Until Key Recommendation 7 is implemented to standardize the process for capturing and reporting call volume data, a comprehensive analysis will be difficult. ● Recommended recruitment processes include: ○ That ECCs utilize NFPA 1225 (2022) Chapters 4 - 11 Standards and NENA Standards for Hiring and Selection to inform their recruiting practices for the ECC. ● Hiring and selection standards are integral to ensure the right fit candidates for a dynamic, high risk and safety sensitive position in emergency communications. However, they should be adopted in a manner that supports and enhances effective recruiting. ● That industry specific pre-employment testing be conducted for potential candidates to ensure behavioral and psychological fit for public safety communications prior to being hired. This ensures employees have the behaviors, mindset, attitudes, and resilience necessary to succeed in the 9-1-1 industry and have not only proven to increase recruiting right fit candidates but improve retention in ECCs. ● While the staffing analysis does not address other recruiting, retention, and wage concerns above, the recommendation for a phased approach toward ECC consolidation does. Concerns from frontline staff have already been brought forward regarding the workload changes that regionalization may bring and the disparate wages and compensation across the ECCs. Workload Impact ● If the recommendation for a phased approach to regionalization is adopted, in the foundational model, there will not be significant impacts to workload. Primary PSAP ECCs will process any 9-1-1 calls received for other ECCs and enter the call in CAD rather than transferring them to the ECC having jurisdiction. ECCs will not be dispatching calls for other ECCs in the first phase of implementation. Future Recommendation ● Future Recommendations

		• If full consolidation becomes a future goal (or any level of consolidation), a number of things must be addressed to support the integration of four different groups of ECC employees combining to become one or combining to share workload over and above the initial phase of foundational model regionalization. Early engagement of necessary stakeholders including labor associations, human resources, and legal representation, as appropriate, for each agency will be necessary. • In a fully consolidated center that operates as its own entity: • All 9-1-1 call answer, police, fire, and medical dispatch would occur from one ECC. • All ECC employees would work for the same organization; they would wear the same uniform, have one wage scale and benefits program applicable to all ECC employees, and equal access to training, development, and promotion. • Competition in recruiting and retention across ECCs is resolved; the labor market is impacted by one ECC rather than four competing ECCs. • Consolidation creates significant efficiencies in staffing; reducing short staffing impacts and providing a larger group of cross-trained employees for scheduling and coverage.
Training	• Each ECC has differing criteria and training level requirements for their staff. At REMSA, all staff have been medically trained at a minimum to the level of an Emergency Medical Technician (EMT) in order to work in the ECC. Other ECCs who will be processing medical calls will not require that level of training per recommendations from the International Academies of Emergency Dispatching (IAED). This will need to be discussed among the group and decided on what is important to standardize in training when processing each other's calls. • Truckee Meadows Community College is working to deliver a Public Safety Communications post-secondary program. This is a great way to partner among the ECCs and College to contribute to the content, instruction and program deliver from ECC staff and trainers, and provide practicum placements in the ECC for students who can "try on the career" and connect with the ECCs teams while both student and center have an opportunity to assess suitability and fit. This kind of program results in a high success rate	• In a regionalized call model, procedures will need to be created to streamline 9-1-1 call answer and call processing procedures. Scripted call taking protocol for police, fire and medical calls if implemented at all ECCs will further streamline and standardize the 9-1-1 call answer and call processing across all primary PSAP ECCs, and in the Washoe County, Reno and REMSA ECCs for EMD. • This makes creating a portion of the training for new recruits more efficient as it can be done at a regional level and shared among ECCs. It also makes delivering foundational training in a collective classroom easier. The common components for ECCs recruit training program can include: • Basic public safety telecommunicator training • ECC technology includes phone, CAD, radio, and logger recorder. • 9-1-1 call answer and call processing including IAED emergency dispatch

	of onboarding new staff and retaining them.	protocol training and certification for EMD, EPD, and EFD. ● Timing of recruit training was another factor that contributed to regional academy issues; the timing of recruit onboarding was misaligned among agencies. Whenever possible, ECCs can work together to schedule new recruit training as and when it aligns with the cadence of their recruiting and onboarding programs. ● In the previous academy created by the regional ECCs, not all content was relevant to recruits. The regional recruit academy can provide the foundation training listed above and any other training, procedure and agency specific information and learning relevant to each respective ECC could occur separately. Training Standards ● NFPA 1225 (2022) Chapter 7: Public Safety Communications Training Officer (NFPA 1061) and Chapter 10: Public Safety Communications Training Coordinator (NFPA 1061) ● APCO ANS 3.108.2-2018 Core Competencies and Minimum Standards for Public Safety Communications Instructor ● APCO ANS 3.104.2-2017 Core Competencies and Minimum Standards for Public Safety Communications Training Coordinator ● APCO ANS 3.101.3-2017 Core Competencies and Minimum Standards for Public Safety Communications Training Officer (CTO) ● NENA Communications Training Officer (CTO) ● Supervisor qualifications and job requirements that comply with NFPA 1225 (2022) Chapter 8: Public Safety Communications Supervisor (NFPA 1061)
Standardized QA/QI	● Regional QA/QI group suggested for all ECCs not limited to EMD but to include compliance measurement and feedback on call answer, call process and dispatch standards, and continuous improvement measures through training.	● Create a regional QA/QI working group or committee. This group can create a regional QA/QI program that aligns with a new regional process and existing QA/QI and training programs at their ECC. The Regional QA/QI working group will also provide opportunities for shared knowledge, experience, and training among ECCs so that each can have a well-defined program applied consistently in their ECC and to support the collective aim for excellence in call taking and dispatch across the region. ● In the regional QA model, discuss and decide how calls taken for one

		agency at another agency will be QA'd and feedback provided to staff. The quality assurance process can be provided for any ECC by any ECC as long as it is standardized, and all quality assurance staff are trained to provide it. This is a great opportunity to apply regional knowledge and QA/QI capacity across the region. ● As QA/QI is used to inform training this working group may also wish to work with the regional training group and their training program leads their respective ECCs to support continuous learning and improvement. ● Qualifications for creating a regional quality assurance and quality improvement program can be informed by the following standards: ○ International Academy of Emergency Dispatch – Emergency Dispatch – Q (ED-Q) certification in EMD, EFD, and/or EPD ○ APCO/NENA ANS 1.107.1.2015 Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points ○ APCO ANS 3.106.2-2017 Core Competencies and Minimum Standards for Public Safety Communications Quality Assurance Evaluators
Technology – CAD	Today there is a single CAD system for Reno, Sparks and Washoe County 9-1-1 PSAPs. It is owned and administered by the City of Reno, with Sparks and Washoe County CAD configured as remote to the server setup in Reno. The three PSAPs operate as virtually consolidated centers as they are able to share call information across the CAD with each other as necessary for joint response across the region. ● As the Washoe County and Sparks CAD is configured as remote to the Reno server, there are issues with backup/fallback planning for CAD use. When the CAD is down, the Washoe County and Sparks ECCs cannot operate in a backup or offline mode. ● REMSA is on its own CAD, and it is not interfaced with the other ECCs CAD system. Electronic call sharing and situational awareness of unit status and incidents in progress is not possible between them and the other agencies.	● Implement a shared CAD solution used by all four ECCs. The only ways to achieve the regional model for call taking and response desired is to ensure that all ECCs have CAD systems that can share call information and unit status electronically with each other whether through a shared CAD system or a CAD-to-CAD interface. The region wishes to implement a regionalized model as soon as possible. In order to share call information between the three ECCs on the City of Reno hosted CAD and REMSA ECCs CAD, and to implement dispatch of closest most appropriate fire response, all ECCs need to be operating on a shared CAD system or technology must be implemented to interface the CAD systems and allow for electronic transmission of calls and support response plans (run cards) where units can be recommended based on GPS location, rather than street network or static response zones. ● It is not possible to achieve the fully regionalized model until this technology

		is in place. In the City of Reno hosted CAD, Reno Fire Department and Sparks Fire Department may be able to implement the ability to use GPS to dispatch closest fire unit because it is the same system and could be set up to access GPS location of units. However, Truckee Meadows Fire is dispatched from the REMSA CAD, which doesn't have the connectivity necessary to see GPS location of units in the City of Reno hosted CAD. ● The four ECCs create and implement a well-defined workflow and procedure for processing and sharing EMS call information between each other that minimizes risk and creates efficiency in timely notification for dispatch and updated information for responders. It should include a dedicated means of communication between the ECCs via phone or radio that receives priority over other routine calls or radio traffic.
Technology – 9-1-1 Call Handling System	● All four ECCs have the same 9-1-1 call handling system. The current system is not designed to notify other PSAPs when one agency is in call overflow and unable to answer any additional 9-1-1 calls. In this case, when an EMS call is transferred to REMSA, but they are not able to answer it, there is no automated messaging to indicate to the call taker or the caller that contingency routing is necessary; the call will continue to ring and ring and then emit a few "beeps" on the line indicating that PSAP cannot take the call. Further, the transition to a contingency process must be performed manually and is not automated within the system. ● Additionally, when the Washoe County ECC is in back-up support mode for REMSA, the primary PSAP transferring the call to EMS is not aware the call is being routed to Washoe County ECC. As there is no separate phone line for REMSA 9-1-1 calls coming into Washoe County ECC, the call taker will answer it as a regular 9-1-1 call and begin the initial triage over again. If the call is not a warm transferred by the primary PSAP, the caller will need to repeat the details all over again.	● Implement an automated process and technology be in place to identify when any of the primary or secondary ECCs are in call surge and do not have call takers to receive the next incoming call. That this system be programmed in the 9-1-1 telephone system and also be both visually and audibly displayed in all ECCs by way of a dashboard, lights, and audible tones. ● Have a visible dashboard in each ECC listing all four ECCs call volume/call load and capacity in real time on one screen. This provides the highest level of situational awareness for ECCs to know when calls are waiting to be answered and contingency procedures should be enacted. We recognize that in the co-located Washoe County and Reno ECC, there is technology in the room that provides a visible dashboard of this nature, and each agency is able to see each other's call volume and workload, but it does not include City of Sparks or REMSA call data. Likewise, City of Sparks and REMSA ECCs do not have access to this info in other ECCs either. A minimum alternative solution is to implement a system indicator or automated messaging on REMSA's 9-1-1 phone system to advise any primary PSAP transferring a caller to them that "all emergency call takers are on the line with callers... please stay on the line". In these instances, Washoe County

		and City of Reno ECCs either do not attempt to transfer the call or cancel the call transfer and maintain custody and begin EMD provision.
Technology - Radio.	• A major barrier identified throughout the interviews and workshops is the lack of interoperability in CAD and radio systems, including 800MHz between REMSA, the ECCs and the response agencies. Currently a lack of radio IDs prohibit REMSA from being a part of NSRS, in addition they do not have access to the same funding sources that other ECCs and response agencies did for the migration to a regional radio. • Additional gaps noted are that each response agency is responsible for programming and updating its radios. • There is no standardized naming convention across the agencies, and when an emergency alarm is activated on a radio, it shows the agency name, but it is not always immediately clear to all ECC dispatcher's exactly who the radio belongs to in that department. • Emergency alarms on radios are received at every ECC's radio console irrespective of whether they dispatch that agency or not. There is no procedure across all the ECCs on who should acknowledge the alarm and when another agency should step in to assist if the alarm hasn't been acknowledged but is still going after a set amount of time.	• ECCs, Police, fire, and EMS are critical components in public safety service delivery across the region. Interoperability is paramount for agencies to co-respond to incidents of any size and is of particular necessity in a regionalized model. EMS is not operating on the NSRS for public safety that other stakeholders are on. • Evaluate REMSA Franchise Agreement Article 5 • Confirm what "maintain compatible communications with 911 systems as technologies evolve as defined by the DISTRICT." means in relation to interoperability among public safety agencies. REMSA has a radio system that supports communication between the ECC, the EMS response units and personnel, and the radio traffic for patient reports to the area hospitals and the recording of all radio traffic as per Article 5.2 in the agreement. • Investigate feasibility of REMSA migration to NSRS; what funding, if any, can be made available to support migration? • If migration to NSRS is not possible, investigate how the two radio systems could be interfaced or architected for interoperability to support the regional model. • Review and standardize the naming conventions for programming public safety radios across the region to ensure assignment of unique agency and unit/user IDs. This provides visual awareness at the radio console of what agency the alarm is coming from and quicker acknowledgement from the respective ECC supporting them. • Create a region wide radio emergency alarm procedure for all ECCs on the NSRS system to identify who is responsible for acknowledging what alarms at each ECC, and what the backup procedure is if an alarm has gone unacknowledged by an ECC after a specific amount of time.
Technology – Logging Recorder	• Reno and Sparks Fire have purchased and have/are implementing new station alerting technology. At present, there are no other fire agencies participating in the station alerting project. TMF is also in the process of implementing the new station alerting solution.	• Standardize a process and develop a procedure for how logging recorder information will be requested and provided among the ECCs. • Identify, agree to, and include the expected time of turnaround for urgent vs routine requests.

Technology – Fire Station Alerting	• Review and revise aid agreements to expand response area where appropriate and where data supports it. • This work can be investigated for feasibility prior to new CAD migration. • Any changes before CAD migration/dispatch by AVL exists for closest, most appropriate unit response should not place additional workload or create a manual process for dispatchers at ECCs to manage.	• A single station alerting solution across all fire response agencies and ECCs would prove beneficial in a regionalized model where a shared CAD system and shared radio already exists across the region. • Fire response agencies may want to discuss this gap as soon as possible to determine if additional stakeholders should be invited to participate in the fire station alerting technology procurement.
Technology – CAD Mapping	• REMSA's CAD mapping and the current shared CAD hosted by City of Reno mapping do not have the same addressing conventions, nomenclature, or one to one relationship should they need to exchange address information across an electronic interface. This will need to be addressed if a CAD-to-CAD interface is implemented and/or when REMSA transitions to shared CAD with the other agencies. • Disparate addressing and common place definitions	• Standardize GIS in the new CAD system. • Standardize common places (to the extent possible) and address conventions to align with NENA GIS Standards. • Identify a central GIS collection and aggregation resource as part of the CAD implementation. • Create agreed upon process for coordinating GIS updates across all ECCs in the regional model and shared CAD; include municipality/agency GIS stakeholders in this process
Technology – Interfaces & Data Sharing Among Agencies	• At present, the response agencies do not share RMS data with each other. Data sharing is important between applications such as body worn cameras, license plate readers, and facial recognition cameras for police; pertinent medical history, hazmat or potential safety issues documented for locations/property among all response agencies; and pre-plans among fire agencies. This type of integration and interface should be available across the region and facilitated by standardization of data.	• Implement data sharing processes and practices across the region's agencies. While reference to law enforcement technology is made above, and they are not yet included in the regional model, it is beneficial to work toward shared data across all stakeholder agencies now. As the region continues to work toward increasing regionalization efforts, this will serve to support the regional model at every level and provide better information to serve the public and support public safety agencies across the region.

3.2.2 Governance

There is enabling legislation that provides the Cities, County and REMSA the authority to form cooperative agreements with each other, primarily through (NRS 277.045). There are several examples of existing interlocal contracts, and intergovernmental, interagency, and/or cooperative agreements among the stakeholder municipalities in the cities, County and REMSA including:

- CAD Agreement between the Cities of Reno, Sparks, Washoe County, and REMSA is in the process of being finalized.
- Regional Public Safety Training Center Interlocal Agreement between the Cities of Reno and Sparks, and Washoe County
- Joint Services Building; co-located ECC between the Cities of Reno, Sparks, and Washoe County; joint emergency operations center for all public safety stakeholders within the Cities and County.
- Franchise Agreement between REMSA and Washoe County Health District
- Interlocal Agreement for Emergency Medical Services Oversight between the Cities of Reno, Sparks, and Washoe County Health District
- GIS Interlocal Agreement between the between the Cities of Reno and Sparks, and Washoe County
- Nevada Shared Radio System (NSRS) Contract between the Cities of Reno and Sparks, and Washoe County
- Numerous cooperative agreements between response agencies within the Cities and County, and with bordering fire jurisdictions outside of County limits for enhanced, auto, and mutual aid support

There were no existing agreements in place between all four primary stakeholders until recently when the Cities of Reno and Sparks, Washoe County and REMSA finalized a shared CAD and RMS agreement.

3.2.2.1 Recommendations

Governance serves to establish a shared vision and collaborative decision-making process to support regionalization, improved interoperability, communication,

coordination, and cooperation across jurisdictions and stakeholder agencies in the region. Governance for regionalization is necessary and planning considerations include defining the structure of the system, how it will be maintained and by what governing body, who should be represented as members and how, and how to gain support from secondary agencies.

Key Recommendation 2 highlights the need to reference the shared CAD and RMS Agreement currently drafted and pending with the various Boards. Some of the context described can support some components of regionalization; however, stakeholders will need to draft the agreement so that it is a collaborative partnership agreement and no one agency or municipality is in charge of another.

It should result in the establishment of a shared services agreement and stakeholder agencies that are a full partner with the other public safety agencies involved, rather than a subordinate of one of those agencies. One primary agency should not be in charge of the regionalization efforts and have the other agencies report to it. All agencies should operate as a collective to support regionalization with strong governance in place to steward effective and sustainable decision making, policy, operations, and funding.

Should full ECC consolidation occur in a future phase of regionalization, the center should operate as its own entity under the management of a Director or Chief who reports to a governance board comprised of stakeholder representatives. The Director or Chief should not be placed in a situation where one agency or municipality has direct oversight of the ECC or is favored to the detriment of others. The business model approach of ECC as a service provider and the response agencies/municipalities as customer(s) will result in equal and optimum service to all user agencies.

The foundational regionalization model has been chosen and this section offers recommended considerations for initiating governance discussions at this point in the project. Further recommendations on governance may be provided in future phases of this project, through other additional project work, and dependent upon the factors mentioned above.

Components of the shared CAD and RMS agreement or other existing agreements can be reviewed to assess suitability for re-use/repurpose, but the new governance structure and agreement for regionalization must consider stakeholder concerns and input that include:

- One stakeholder cannot be the owner or in charge of the agreement; it must be a collaborative approach.

- There must be equity in representation and decision making for each agency at the governance table.
- Service Level Agreements (SLAs).
- Must be written to sustain long term success and survive leadership turnover and attrition.
- Empowers problem solving at the lowest operational level.
- Fiscal responsibility is defined and equitable.
- A board that is more managerial and less elected official. Include a business partner and/or nonpublic entity representative.

A regionalization agreement is a living document. The first iteration can be created to support the foundational model, with the understanding that it will be augmented as needed for future phases of regionalization, and/or if other (non-region) entities wish to become part of the regionalization model in the future.

3.2.3 Funding

Regionalization of this project's magnitude will require planning for and access to funding to support the capital and operating expenses for implementation and ongoing operations and maintenance. This includes capital and operational costs for planning, implementation and maintenance of systems and technology. The specific needs will need to be identified once the recommendations are formalized and an action plan agreed upon.

There are human capital expense considerations for agencies to operate within the regional model including training, wages, any increase in staffing necessary within ECCs and response agencies, and expenses for wages and training among IT teams who support and maintain the technology and systems. These costs require continuous planning to support ever-changing technology, growth, expansion, and the operational

Challenges/gaps in funding include:

- Disparity in access to funding across the stakeholders. All stakeholders with the exception of REMSA have access to 911 Emergency Response Advisory Committee funding through phone surcharges and dispersed by the Committee on behalf of the state.

- Although funding has been a barrier in the past for REMSA's participation in the CAD and shared radio system projects, they are committed to finding funding for these important systems. Their recent participation in the CAD project will remove an important barrier as these systems are most advantageous to provide the level of interoperability necessary in the desired regional model.

- Capital and operating expenses to plan, implement, and maintain the model are necessary for all stakeholders and have not been considered in current budget cycles as this is a new initiative.

3.2.3.1 Recommendation

Once the regional model and recommendations have been decided, an action plan should be created and include capital and operational costs for implementing any new software, hardware, process, staffing or other components that require funding.

It is not necessary to wait until the regional model has been decided to identify funding sources. Investigating potential funding sources and solidifying access to funding for stakeholders and agencies can begin today to support planning, implementation, and ongoing maintenance of regionalization.

- In the first phase of regionalization, each municipality, ECC, and EMS or fire service should be responsible for covering its own costs required to enter into a regionalization agreement.
- Agree upon a cost approach for the regional model.
- Dependent upon the item requiring regional use and shared cost, costing models could be based on stakeholder use or similar. It will be difficult to ascertain any shared costing models without knowing the decided direction for regionalization or particular requirements for implementation. Wherever possible, stakeholders should utilize existing funding mechanisms to offset regionalization costs as applicable.

911 Emergency Response Advisory Committee Funding

- Stakeholders identified a considerable hurdle to successful regionalization is the ability for all parties to have interoperability. REMSA is not on the same CAD or radio system as the other ECCs and response agency stakeholders. The level of interoperability required for regionalization can only be achieved

through a shared or virtually capable integration of information and communication systems such as telephone, CAD, and radio.

REMSA is the EMS service delivery provider in the region, as contracted by the Washoe County Health District. REMSA is a non-government agency operating as a non-profit organization providing public safety emergency medical service. This business operating model deems them ineligible for public safety funding from the 911 Emergency Response Advisory Committee. It is the only first responder public safety agency in the region who is not eligible for this source of funding.

- ***FE*** recommends that Washoe County Health District assess its eligibility as a public safety entity qualified for 911 Emergency Response Advisory Committee funding. The County Health District is responsible for ensuring EMS provision in the County, which may distinguish them as a public safety entity. As such, the Health District may be able to receive funding to support EMS migration to NSRS and shared CAD in the region.

- As per the franchise agreement, REMSA is required to provide and maintain the radio system that EMS operates on and communicates with the region's care facilities/hospitals. If the Health District is eligible for funding and can join the NSRS as a public safety entity, franchise agreement language should be reviewed/revised, and if necessary, a Memorandum of Understanding (MOU) can be created between the Washoe County Health District and REMSA for the use of the NSRS as a contracted EMS service delivery provider.

In the first phase of regionalization, the model may include the following costs:

Table 2 - Foundational Phase Cost Model

Potential Costs	Phase 1 Recommendations
Staffing	• Staffing increases to support current call volume at each ECC, any additional call taking for EMD, and in anticipation of additional call volume with regionalization. • IT support staff to support the implementation and maintenance of any technology/process required to support regionalization.

Potential Costs	Phase 1 Recommendations
Technology	• CAD to CAD two-way interface between all ECCs to receive EMS call information and allow for closest/appropriate dispatch of fire resources. • Implementation of electronic scripted/standardized call taking protocol for fire, medical, or police (IAED). • Any call handling solution/telephone system changes or additional software to set up regional call taking, automatic call distribution, or contingency routing among ECCs. • GIS and IT support to create and implement “closest, most appropriate” fire response recommendations in CAD/agency response plans. • Technology and support staff to implement dispatch by GPS/AVL rather than by street network, allowing for closest most appropriate fire response. • Any required costs for creating interoperability between stakeholder ECCs and response agencies operating on the regional radio system, REMSA, and Truckee Meadows Fire (who are dispatched by REMSA but have access to the regional radio system). • GIS and IT support to streamline addressing conventions/CAD interface between REMSA & ECCs. REMSA CAD has different addressing conventions than the CAD for Reno, Washoe County, and Sparks ECCs. This will need to be managed in order to send/receive/share calls electronically.
Training	• New recruit training for staffing increases, • Training for staff in any regionalization policy/procedure, workflow and/or technology. • Training for any call taking protocol implementation.

Potential Costs	Phase 1 Recommendations
Operational Impacts	• Streamlining policy/procedure to support a regional model for call answer, call processing, and regional fire response – costs for staffing/project team to create and implement. • Quality Assurance and Quality Improvement programs in individual ECCs to support the regional model. Decide process for how calls taken for other ECCs will be reviewed and reported. Additional meetings/working groups to share QA/QI findings and training across all ECCs.
Facilities	• Any additional workstations that need to be implemented to support staffing increases necessary at ECCs will need a feasibility assessment for what space is available in the ECC facility. In some cases, there may be no room for further expansion and renovation must be considered.

4. Regional Staffing Analysis

4.1 Staffing Analysis

FE conducted a high-level staffing analysis of all stakeholder ECCs to identify the number of staff required to support each ECC's call processing operations independently, and to assess impacts and requirements for staffing in a virtually consolidated regional model where shared call answer and processing would occur among the ECCs. This is meant to provide an overview and comparison of current staffing in each ECC versus the staffing required collectively to support call answer and processing in the region while meeting industry standards and best practice for call answer metrics.

Staffing requirements are dynamic in ECCs and over a short period of time can change due to call volume, workload, changes in procedure and policy or service delivery, and population growth and service demands. Washoe County, City of Reno and City of Sparks are experiencing considerable population growth. Therefore, should regionalization implementation be significantly delayed, or measures toward full consolidation be taken in the future, it is imperative that another staffing study be conducted to reflect the conditions at that time in order to recommend the appropriate staffing and supervision levels to support it.

Further, irrespective of regionalization or consolidation, regular staffing studies should be conducted recurrently in ECCs. The 9-1-1 industry is experiencing a significant staffing crisis industry wide. This issue, along with additional aggregating factors like population growth, call volume increase, and service demands, requires routine staffing and workload analysis to ensure staffing levels are growing to support demands in service.

4.1.1 Minimum Staffing Requirements

To provide efficient service to the public and local emergency services, ECCs must always maintain an adequate number of qualified staff on duty. When this does not occur, service quality can diminish and the short and long-term effects on employees often lead to staffing shortages, overworked personnel, increased illness, absenteeism, and attrition, increased complaints from citizens and response agencies, and a reduced level of confidence in the ECC's operations.

Determining appropriate staffing levels for a multi-agency and/or multi-discipline regionalized model or virtually consolidated ECCs is a complex process. It involves a combination of mathematical calculations based on a quantifiable workload, such as 9-1-

1 and administrative call volume, incidents requiring dispatch services, and number of dispatch positions required.

The staffing needs of a 24/7 public safety communication center operation require constant monitoring of the workload and staffing assignments to maximize coverage across all shifts. The work hours and assigned positions per shift are based on need, skill sets, experience, and call volume. ECC management and supervisory staff are responsible for monitoring these levels.

The NFPA 1225 (2022), Annex A.15.3.1.1 states "*Telecommunicator staffing is an important issue in achieving prompt receipt and processing of events. Consider the following two concepts of communications center operations:*

> ***Vertical Center:*** *A telecommunicator performs both the call-taking and dispatching functions.*
>
> ***Horizontal Center:*** *Different telecommunicators perform the call-taking and dispatch functions separately.*

Telecommunicators working in a vertical center are known to engage in multitasking that can inhibit their ability to perform assigned job functions. Routine evaluation of telecommunicator staffing, number of inbound emergency and non-emergency calls, and other operational statistics are necessary to allow a prompt receipt and processing of events."

In the ECCs across the region, a horizontal call model is utilized in each center. There are distinct call taker positions which are separate from dispatch positions. The call volume and complexity of a regionalized call answer and processing model would require that all ECCs continue their horizontal model approach. The estimated staffing recommendations in this report have been calculated based on the horizontal call model.

Emergency Communications Center best practices and NFPA 1225 (2022) 15.3.1 advocate "*There shall be a minimum of two qualified telecommunicators on duty and present in the communications center at all times*."

Further, NFPA 1225 (2022) 15.3.2 requires that during major incidents *"When requested by the incident commander, a telecommunicator shall be dedicated to the incident and relieved of other duties within the communications center."*

In each of the ECC's center and staffing models, the above standards are easily achieved.

4.2 Standards and Best Practices

Key public safety industry organizations recognize that the on-going evolution of 9-1-1 requires establishing minimum standards for ECC employee training, operations, technology, and facilities.

These organizations include:

- International City/County Management Association (ICMA)
- National Emergency Number Association (NENA)
- Association of Public-Safety Communications Officials - International (APCO)
- International Association of Fire Chiefs (IAFC)
- Commission on Accreditation for Law Enforcement Agencies (CALEA)
- National Fire Protection Association (NFPA)

The specific standards applicable to region's ECCs include the following service quality and performance goals in call-taking:

NENA-STA-020.1-2020, 9-1-1 Call Answering Standard, states:

- 90% of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) SHALL be answered within 15 seconds;
- 95% percent of all 9-1-1 calls SHOULD be answered within 20 seconds."
- The interval between Call Arrival and Call Answer should be evaluated, at a minimum, for each preceding month using a full month of data. Determining if a PSAP has successfully met the call interval metric of 90% in 15 seconds (and 95% in 20 seconds), should be based upon the one-month evaluation. An authority having jurisdiction (AHJ) may measure this metric on a weekly or daily basis for a more detailed analysis.
- "Ninety percent of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten seconds during the busy hour (the hour each day with the greatest call volume, as defined in the NENA Master Glossary 00-001). Ninety-five percent of all 9-1-1 calls should be answered within 20 seconds."

The call processing and dispatching requirements section in NFPA 1225 (2022) state:

- Section 15.4.1 - "Ninety percent of events received on emergency lines shall be answered within 15 seconds, and 95 percent of events shall be answered within 20 seconds.
- Section 15.4.1.1 - "Compliance with 15.4.1 shall be evaluated monthly using data from the previous month."
- Section 15.4.2: Where emergency events are transferred, the transfer process shall not exceed 30 seconds 90 percent of the time.
- Section 15.4.2.1: The event shall be transferred directly to the telecommunicator.
- Section 15.4.3: Call processing time shall include the time from call answer to initial notification of the responding ERU(s).
- Section 15.4.4 - "Emergency event processing for the highest prioritization level emergency events listed in 15.4.4.1 through 15.4.4.2 shall be completed within 60 seconds, 90 percent of the time."
- Section 15.4.9: An indication of the status of all emergency response units shall be available at all times to telecommunicators who have dispatching responsibility.

4.2.1 Recommendations

FE recommends that the ECCs collectively adopt (or continue to use) NFPA and NENA call taking and dispatch standards. The standards compliance should be measured and reported by each ECC regularly (monthly at minimum) as part of a regional quality assurance and quality improvement program and as per the NFPA and NENA industry standards for quality assurance below, and as outlined in the *Recommendations* section of the report.

- NFPA 1225 (2022) Chapter 9 – Public Safety Quality Assurance/Improvement Personnel (NFPA 1061)
- APCO/NENA ANS 1.107.1.2015 Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points

4.3 Call-Taking

Call volume is the prime factor in determining the number of trunks, workstations and call-taking positions needed to manage an ECC's projected call taking workload. Of equal

importance in determining the number of staff, is to measure against the standards by which an agency complies with call answering. The NENA[1] and NFPA[2] standards, used by the Insurance Services Office (ISO), is to answer 90% of all 9-1-1 calls within 15 seconds and 95% answered within 20 seconds.

The first step in determining staffing levels is to gather the telephone call volume statistics from each ECC which included incoming 9-1-1 calls, ten-digit emergency and non-emergency phone calls, outgoing phone calls, and the average calls per hour for each ECC's busiest month in 2022.

- The combined 9-1-1 call volume for the ECCs for 2022 including wireline, wireless and Text-to-9-1-1 calls was **337,775**.
- The total ten-digit emergency and non-emergency call volume was **553,527**.
- The total outgoing calls were **215,197**.
- The total call volume including all 9-1-1, text-to-9-1-1, ten-digit emergency and non-emergency phone calls, and outgoing calls for all of the PSAPs in 2022 was **1,106,499**.

A representation of call volume breakdown for each of the four ECC operations is in the table below.

Table 3 – Combined Call Volume by Type

Phone Calls - Wireline 9-1-1					
Agency	**2019**	**2020**	**2021**	**2022**	**Average**
Reno Public Safety Dispatch	35,299	31,291	28,542	26,067	30,300
REMSA	13,837	12,170	11,029	14,734	12,943
Sparks Police Department	n/a	47,403	44,909	44,909	34,305
Washoe County Communications	1,068	873	4,439	3,398	2,445
Total	**50,204**	**91,737**	**88,919**	**89,108**	**79,992**

[1] NENA-STA-020.1-2020, 2.2.3 and 2.2.4
[2] NFPA 1225, 15.4.1

Phone Calls - Wireless 9-1-1					
Agency	2019	2020	2021	2022	Average
Reno Public Safety Dispatch	167,011	169,206	183,292	161,951	170,365
REMSA	30,235	34,829	40,041	47,411	38,129
Sparks Police Department	n/a	n/a	n/a	n/a	0
Washoe County Communications	7,999	9,297	24,116	24,646	16,515
Total	205,245	213,332	247,449	234,008	225,009

Phone Calls - Non-Emergency					
Agency	2019	2020	2021	2022	Average
Reno Public Safety Dispatch	191,366	194,077	214,782	210,072	202,574
REMSA	132,419	137,810	142,966	139,822	138,254
Sparks Police Department	155,972	129,036	118,479	118,479	130,492
Washoe County Communications	66,752	70,888	93,596	85,154	79,098
Total	546,509	531,811	569,823	553,527	550,418

Text to 9-1-1					
Agency	2019	2020	2021	2022	Average
Reno Public Safety Dispatch	597	461	3,375	13,149	5,861
REMSA	3	12	39	9	21
Sparks Police Department	n/a	488	219	1,433	713
Washoe County Communications	6	9	69	68	51
Total	606	970	3,702	14,659	6,646

Phone Calls - Outgoing Calls					
Agency	2019	2020	2021	2022	Average
Reno Public Safety Dispatch	83,981	80,542	74,065	62,463	75,263
REMSA	73,025	84,809	86,198	77,556	80,397
Sparks Police Department	n/a	44,083	38,817	38,817	30,429
Washoe County Communications	37,768	36,554	41,997	36,361	38,170
Total	194,774	245,988	241,077	215,197	224,259

Phone Calls - Total Calls					
Agency	2019	2020	2021	2022	Average
Reno Public Safety Dispatch	478,254	475,577	504,056	473,702	482,897
REMSA	249,519	269,630	280,273	279,532	269,739
Sparks Police Department	155,972	221,010	202,424	203,638	195,761
Washoe County Communications	113,593	117,621	164,217	149,627	136,265
Total	997,338	1,083,838	1,150,970	1,106,499	1,084,661

4.3.1 Recommended Staffing Model for Call Takers by Hourly Call Volume Distribution

The next step in staffing recommendations is calculating the number of call taker positions requiring 24/7 staff to manage the call volume for each ECC. The Hourly Call Volume Distribution and Call-taker Count table reflects the monthly and per-hour estimated call volume determined by the busiest month of the year in each ECC for 2022.

Each ECC provided hourly call volumes for their busiest month in 2022, which was used to determine the busiest hour and slowest hour estimates in a 24-hour period (as highlighted in the tables below). ***FE*** arrived at the number of call-taker positions recommended by hour for the 24-hour period using an Erlang C calculator. These figures are reported for each individual ECC in the Hourly Call Volume Distribution and Call-taker Count tables below.

The Erlang C calculator is a traffic model tool developed in the 1970s by telephone companies to project the number of operators needed to manage specified call volume. This tool is the foundation of the current 9-1-1 industry staffing standards and tools available through APCO and NENA. The calculator is enhanced by 9-1-1 industry and individual PSAP data to form a methodology that projects how many full-time equivalent (FTE) staff are needed to process calls while meeting the call answer standards. Note that only call-taking positions and number of call-takers required are all that these staffing tools can accurately project; it does not project dispatch positions. Dispatch position staffing is achieved through deeper workload analysis which is outside the scope of this project and report.

The Erlang C calculations performed by ***FE*** uses the industry call-taking performance standards to arrive at the correct number of physical call-taking workstations that need to be staffed, by hour of the day, to meet those standards. Calculations do not allow two separate service level objectives for emergency and non-emergency calls, therefore the more stringent 9-1-1 call answer NENA standard of 90% within fifteen seconds or less is used for both 9-1-1 and ten-digit incoming calls as part of the combined call load.

The call-taker performance standards used in these calculations vary across each ECC and are based on the average talk time provided for their calls, and the wrap up time. Wrap up time is the amount of time needed after the call has ended to finish tasks associated with the calls, such as completing CAD incident notes and narrative, and then preparing for the next call. ***FE*** used the industry best practice average of 45 seconds for call wrap up time for each ECC.

The slowest hour of the day and the busiest hour of the day are highlighted on each table. When reviewing scheduling practices at a more granular level, determining the busiest and slowest days of the week, along with the hours of those days, allows ECC management to schedule staffing for shifts more efficiently, and based on actual workload. Fundamentally, it is important to remember that the call taker staffing projections are based on the busiest month of the year and indicate the greatest number of staff required at a time to support call volume and meet call answer metrics. That can be adjusted seasonally, or throughout the year as appropriate for lower call volume months if the ECC desires.

The following table depicts the performance metrics for each ECC. ***FE*** used the following reported metrics along with the industry standards and best practice for call answer to align the calculations with the ECC workload. These include:

- The service level objective of 90% of 9-1-1 calls answered within 15 seconds or less (NENA and NFPA standards) were used for all ECCs.
- Average talk time as provided by each ECC.
- Average best practice after-call wrap up time of 45 seconds.

Table 4 - Call Performance Standards & Metrics for ECCs

Call Performance Standards and Metrics for ECCs			
Agency	**Avg Talk Time (secs)**	**Call Wrap Up Time (secs)**	**Call Answer Standard**
City of Reno	85.49	45	90% of 9-1-1 calls answered within 15 secs
City of Sparks	117.19	45	
REMSA	293.39	45	
Washoe County	162.54	45	

4.3.2 Recommendations

The number of call takers needed is calculated based on the assumption that they are dedicated positions and do not perform dispatch responsibilities.

FE recommends:

- That call-taker positions be dedicated solely to call-taking operations and not provide dispatch functions. Staffing recommendations are based on having

dedicated call-takers and dedicated dispatchers who do not provide both functions concurrently.

- If budget allows, that all positions be equipped with the same critical technology for CAD, 9-1-1 answering equipment and radio dispatch consoles. This allows any ECC function, call-taking, or dispatching, to be conducted at any position in the center. This allows supervisors to easily reconfigure operational assignments as needed.

In Tables 5 through 8 below, the light green denotes lowest number of calls per hour and light blue denotes the highest number of calls per hour.

The totals in the tables below represent:

- The total number of calls in a 24 hour period, as averaged during the busiest month of 2022 for each individual ECC.

- The total average number of positions (workstations) required to be staffed to cover call taking and meet call answer performance standards, as averaged during the busiest month of 2022 for each individual ECC.

- Although call volume and workload will not require that many staff on duty during less busy periods of the year, it is important for ECCs to understand the maximum amount of staff they require to support their highest call demand at peak times. To staff with less than this level will leave the ECC in a state of short staffing at the time they need it the most.

Table 5 - Reno ECC - Hourly Call Volume Distribution and Call-Taker Needs

Reno		
Hour	Avg. # of Calls Per Hour	Call Takers Needed
0:00	38.45	5.00
1:00	29.23	4.00
2:00	27.39	4.00
3:00	23.52	4.00
4:00	21.87	4.00
5:00	19.29	4.00
6:00	25.32	4.00
7:00	34.81	5.00
8:00	49.87	6.00
9:00	57.29	7.00
10:00	61.77	7.00
11:00	65.19	7.00
12:00	66.19	7.00
13:00	68.03	7.00
14:00	69.19	7.00
15:00	66.84	7.00
16:00	69.00	7.00
17:00	68.32	7.00
18:00	61.61	7.00
19:00	64.23	7.00
20:00	62.74	7.00
21:00	64.61	7.00
22:00	59.55	7.00
23:00	47.84	6.00
Total/Avg.	1,222.16	6.00

Table 6 – Sparks ECC - Hourly Call Volume Distribution and Call-Taker Needs

Sparks		
Hour	Avg. # of Calls Per Hour	Call Takers Needed
0:00	15.77	3.00
1:00	12.48	3.00
2:00	10.81	2.00
3:00	10.84	2.00
4:00	9.35	2.00
5:00	7.61	2.00
6:00	13.71	3.00
7:00	17.87	3.00
8:00	21.97	3.00
9:00	24.52	4.00
10:00	28.55	4.00
11:00	26.77	4.00
12:00	27.45	4.00
13:00	25.55	4.00
14:00	27.61	4.00
15:00	29.32	4.00
16:00	31.90	4.00
17:00	27.32	4.00
18:00	25.94	4.00
19:00	24.90	4.00
20:00	26.87	4.00
21:00	29.87	4.00
22:00	25.52	4.00
23:00	21.61	3.00
Total/Avg.	524.13	3.42

Table 7 - REMSA - Hourly Call Volume Distribution and Call-Taker Needs

REMSA		
Hour	Avg. # of Calls Per Hour	Call Takers Needed
0:00	21.32	5.00
1:00	19.68	5.00
2:00	20.03	5.00
3:00	13.77	4.00
4:00	14.55	4.00
5:00	17.55	4.00
6:00	22.74	5.00
7:00	31.77	6.00
8:00	36.10	7.00
9:00	38.45	7.00
10:00	39.39	7.00
11:00	39.32	7.00
12:00	39.74	7.00
13:00	59.29	10.00
14:00	43.29	8.00
15:00	45.74	8.00
16:00	44.26	8.00
17:00	47.26	8.00
18:00	48.13	8.00
19:00	38.90	7.00
20:00	36.77	7.00
21:00	31.13	6.00
22:00	29.65	6.00
23:00	25.71	5.00
Total/Avg.	**804.55**	**6.42**

Table 8 – Washoe County - Hourly Call Volume Distribution and Call-Taker Needs

Washoe County		
Hour	Avg. # of Calls Per Hour	Call Takers Needed
0:00	13.68	3.00
1:00	10.74	3.00
2:00	9.68	3.00
3:00	9.94	3.00
4:00	9.29	3.00
5:00	7.94	2.00
6:00	12.13	3.00
7:00	14.90	3.00
8:00	19.42	3.00
9:00	22.55	4.00
10:00	25.90	4.00
11:00	27.84	4.00
12:00	28.45	4.00
13:00	26.71	4.00
14:00	28.90	4.00
15:00	29.87	4.00
16:00	30.71	4.00
17:00	28.10	4.00
18:00	25.77	4.00
19:00	23.94	4.00
20:00	23.00	4.00
21:00	20.58	4.00
22:00	16.45	3.00
23:00	15.00	3.00
Total/Avg.	481.48	3.50

4.4 Dispatching

Determining number of dispatch positions in an ECC must be done through a workload analysis to assess utility rate, number of agencies and talk groups to manage, time on task and workload; there is not a nationally recognized calculation/formula to determine the number of dispatchers needed based on call volume alone so deeper analysis unique to each ECC must be conducted.

For this high-level staffing study, ***FE*** used the number of dispatch workstations provided by each ECC to calculate the number of staff required to support them. This is the basis of the staffing recommendations for dispatchers.

The following table shows the current number of dedicated dispatch positions, also known as workstations, reported for each ECC. Positions are not the same thing as number of staff; several full-time equivalent (FTE) staff members are required to support the operation of one dispatch position or workstation in a 24-hour period.

Table 9 - Dedicated Dispatch Positions by ECC

Dedicated Dispatch Positions	
Agency	**Dedicated Dispatch Positions**
Reno	5
REMSA	3
Sparks	2
Washoe County	4

4.4.1 Recommendations

FE recommends:

- Recommended best practice is to keep dispatchers focused on dispatching and radio work and not assign additional tasks to primary dispatchers other than dispatching events. They should not be assigned emergency call taking duties. dispatchers must be available and ready as soon as a new event arrives in CAD, or when a field unit has a radio message for the dispatcher.

- That whenever possible, all positions be equipped with the same critical technology for CAD, 9-1-1 answering equipment and radio dispatch consoles. This allows the flexibility for any ECC function, call taking, or dispatching, to be conducted at any position in the center, allowing supervisors to easily change operational assignments of staff as needed throughout a shift without needing them to switch workstations.

- That the goal should always be to cross train staff for call taker and dispatcher job functions in all disciplines within the ECC (police, fire, or EMS). Cross training allows for ultimate flexibility in staffing assignment and coverage. While daily position assignments would change for staff, and even throughout their shift, cross

training allows any employee to be utilized at any position for call-taking or dispatch in any discipline. This methodology ensures a higher level of efficiency and lower overtime costs. The ability to cross-train all staff is of benefit to ECCs of this size and to the regionalization efforts. As centers grow and become more complex there is a need to split job functions by specialty; but the ECC benefits greatly when all staff can perform dispatcher and call taker functions in a horizontal call model center.

- While a Horizontal Call Model structure works well in the ECC, it can add a layer of complexity to scheduling and training. However, cross training employees for all functions in the ECC eases the complexity when looking for staff to fill shifts and for Supervisors who need to re-configure the operations floor and/or staff additional positions based on a fluctuating workload throughout the day.

Tables 10 through 13 provide the recommended number of dispatch staff for each ECC. The light green denotes the lowest number of calls per hour and light blue denotes the highest number of calls per hour.

The totals in the tables below represent:

- The total number of calls in a 24 hour period, as averaged during the busiest month of 2022 for each individual ECC.

- The total average number of positions (workstations) required to be staffed to cover call taking and dispatch and meet call answer performance standards, as averaged during the busiest month of 2022 for each individual ECC.

- Although call volume and workload will not require that many staff on duty during less busy periods of the year, it is important for ECCs to understand the maximum amount of staff they require to support their highest call demand at peak times. To staff with less than this level will leave the ECC in a state of short staffing at the time they need it the most.

Table 10 - Reno ECC Call-Taker and Dispatch Staffing Recommendations

Reno			
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed
0:00	38.45	5.00	5.00
1:00	29.23	4.00	5.00
2:00	27.39	4.00	5.00
3:00	23.52	4.00	5.00
4:00	21.87	4.00	5.00
5:00	19.29	4.00	5.00
6:00	25.32	4.00	5.00
7:00	34.81	5.00	5.00
8:00	49.87	6.00	5.00
9:00	57.29	7.00	5.00
10:00	61.77	7.00	5.00
11:00	65.19	7.00	5.00
12:00	66.19	7.00	5.00
13:00	68.03	7.00	5.00
14:00	69.19	7.00	5.00
15:00	66.84	7.00	5.00
16:00	69.00	7.00	5.00
17:00	68.32	7.00	5.00
18:00	61.61	7.00	5.00
19:00	64.23	7.00	5.00
20:00	62.74	7.00	5.00
21:00	64.61	7.00	5.00
22:00	59.55	7.00	5.00
23:00	47.84	6.00	5.00
Total/Avg.	1,222.16	6.00	5.00

Table 11 - Sparks ECC Call-Taker and Dispatch Staffing Recommendations

Sparks			
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed
0:00	15.77	3.00	2.00
1:00	12.48	3.00	2.00
2:00	10.81	2.00	2.00
3:00	10.84	2.00	2.00
4:00	9.35	2.00	2.00
5:00	7.61	2.00	2.00
6:00	13.71	3.00	2.00
7:00	17.87	3.00	2.00
8:00	21.97	3.00	2.00
9:00	24.52	4.00	2.00
10:00	28.55	4.00	2.00
11:00	26.77	4.00	2.00
12:00	27.45	4.00	2.00
13:00	25.55	4.00	2.00
14:00	27.61	4.00	2.00
15:00	29.32	4.00	2.00
16:00	31.90	4.00	2.00
17:00	27.32	4.00	2.00
18:00	25.94	4.00	2.00
19:00	24.90	4.00	2.00
20:00	26.87	4.00	2.00
21:00	29.87	4.00	2.00
22:00	25.52	4.00	2.00
23:00	21.61	3.00	2.00
Total/Avg.	524.13	3.42	2.00

Table 12 - REMSA ECC Call-Taker and Dispatch Staffing Recommendations

REMSA			
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed
0:00	21.32	5.00	3.00
1:00	19.68	5.00	3.00
2:00	20.03	5.00	3.00
3:00	13.77	4.00	3.00
4:00	14.55	4.00	3.00
5:00	17.55	4.00	3.00
6:00	22.74	5.00	3.00
7:00	31.77	6.00	3.00
8:00	36.10	7.00	3.00
9:00	38.45	7.00	3.00
10:00	39.39	7.00	3.00
11:00	39.32	7.00	3.00
12:00	39.74	7.00	3.00
13:00	59.29	10.00	3.00
14:00	43.29	8.00	3.00
15:00	45.74	8.00	3.00
16:00	44.26	8.00	3.00
17:00	47.26	8.00	3.00
18:00	48.13	8.00	3.00
19:00	38.90	7.00	3.00
20:00	36.77	7.00	3.00
21:00	31.13	6.00	3.00
22:00	29.65	6.00	3.00
23:00	25.71	5.00	3.00
Total/Avg.	804.55	6.42	3.00

Table 13 – Washoe County ECC Call-Taker and Dispatch Staffing Recommendations

Washoe County			
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed
:00	13.68	3.00	4.00
1:00	10.74	3.00	4.00
2:00	9.68	3.00	4.00
3:00	9.94	3.00	4.00
4:00	9.29	3.00	4.00
5:00	7.94	2.00	4.00
6:00	12.13	3.00	4.00
7:00	14.90	3.00	4.00
8:00	19.42	3.00	4.00
9:00	22.55	4.00	4.00
10:00	25.90	4.00	4.00
11:00	27.84	4.00	4.00
12:00	28.45	4.00	4.00
13:00	26.71	4.00	4.00
14:00	28.90	4.00	4.00
15:00	29.87	4.00	4.00
16:00	30.71	4.00	4.00
17:00	28.10	4.00	4.00
18:00	25.77	4.00	4.00
19:00	23.94	4.00	4.00
20:00	23.00	4.00	4.00
21:00	20.58	4.00	4.00
22:00	16.45	3.00	4.00
23:00	15.00	3.00	4.00
Total/Avg.	481.48	3.50	4.00

4.5 Supervision

Public safety best practices require 24/7 supervision in the ECC. NFPA has developed codes, standards, and recommended practices through a process approved by the American National Standards Institute (ANSI). The Technical Committee on Public Emergency Service Communication prepared the latest edition of NFPA 1225, Standard for Emergency Services Communications Systems (2022 Edition). Chapter 15 sets forth the standards for ECC operations: Section 1 of Chapter 15 addresses management:

NFPA 1225 (2022) 15.3.4 states: *"Supervision shall be provided when more than two telecommunicators are on duty."*

NFPA 1225 (2022) 15.3.4.1 states: *"Supervision shall be provided by personnel located within the communications center who are familiar with the operations and procedures of the communications center."*

Annex A of NFPA 1225 (2022) provides further explanation. A.15.3.4 states: *"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,"* 15.3.4.2 further states *"The Supervisor shall be allowed to provide short-term relief coverage for a telecommunicator, provided that the telecommunicator does not leave the communications center and is available for immediate recall as defined in the policies and procedures of the AHJ[3]."*

The Standards for Public Safety Communications Agencies (SPSCA), established jointly by Commission on Accreditation for Law Enforcement Agencies (CALEA) and APCO, does not specifically address staffing or supervision in an ECC. However, both sets of standards reference utilizing Incident Command System (ICS) protocols. It should be noted that CALEA Standard 46.1.2 and SPSCA Standard 7.1.2 are mandatory for CALEA accreditation.

The Department of Homeland Security, coordinating with federal, state, and local governments established the National Incident Management System (NIMS). ICS falls under the Command and Management element of NIMS. ICS represents best practices and is the standard for emergency management across the country. ICS requires a supervisor when there are between three and seven persons performing similar functions (the optimal span of control is five). A manageable span of control allows supervisors to maintain situational awareness of ECC operations, supervise and support their subordinates, while allowing for efficient communications between all parties.

While NFPA standards and ICS require dedicated supervisory personnel, there are in-house considerations as well. A dedicated supervisor(s) must be assigned to each shift. Duties shall include, but not be restricted to, the following:

- Provide coordination and direction during major emergency incidents, such as severe weather, high profile incidents, wildfires

[3] Authority having Jurisdiction (AHJ)

- Available for problem solving
- A single point of contact for subscriber agencies
- Readily able to identify areas for growth among subordinates
- Allow for formalized development of career paths
- Document employee performance for annual/periodic reviews
- Provide a narrow scope of supervision when implementing new policies and procedures
- Provide additional supervision for diversified complex tasks
- Stay current with technological changes/advancements
- Provide guidance to new employees who have less training and experience
- Impart greater knowledge of laws, procedures, and administrative processes
- Focus on the operations of the ECC and not have to split responsibilities with a dispatch position
- Focus on customer service to public, subscriber agencies
- Allow for improved communications with management, subordinates, and subscriber agencies
- Spend more time with subordinates individually, daily
- Allow for operational efficiency
- Identify areas for remedial training, counseling, or discipline, when appropriate
- Address issues upon occurrence, not after the fact
- Set operational and administrative priorities
- Allow for delegation of tasks and responsibilities

4.5.1 Recommendations

For the supervisor staffing estimate ***FE*** reviewed the number of call taker and dispatch positions required each hour of the day. Then, using the recommended optimal span of control of one supervisor for every five to seven employees, the number of supervisors was increased to two for every hour the number of call takers and dispatchers was greater than seven and less than 14.

FE recommends:

- Dedicated supervisors that do not perform call taking or dispatching duties in order to provide operational oversight and support to staff, and maintain situational awareness of ECC activities.
- That ECCs be staffed with more than one supervisor anytime the number of employees (call takers and dispatchers combined) is higher than seven to maintain appropriate span of control.
- Appropriate spans of control are related to both the number of staff directly supervised as well as the complexity of activities overseen.
- Supervision must be consistent across all shifts and by all Supervisors to be effective throughout the ECC.
- To operate at the highest level there must be clear lines of accountability between administration and management. The organizational structure of the regionalization of ECCs should facilitate, not impede, general supervision of the employees and the overall ECC operation.

In Tables 14 through 17 below are total staffing recommendations for each ECC, including supervisors. The light green denotes the lowest number of calls per hour and light blue denotes the highest number of calls per hour.

The totals in the tables below represent:

- The total number of calls in a 24 hour period, as averaged during the busiest month of 2022 for each individual ECC.

- The totals include the average number of positions (workstations) required to be staffed for each function, and the total positions column provides the average number of positions (workstations) required to cover call taking, dispatch, and 24 hour dedicated supervision to meet call answer performance standards and support the workload and team, as averaged during the busiest month of 2022 for each individual ECC.

- Although call volume and workload will not require that many staff on duty during less busy periods of the year, it is important for ECCs to understand the maximum amount of staff they require to support their highest call demand at peak times. To staff with less than this level will leave the ECC in a state of short staffing at the time they need it the most.

Table 14 - Reno ECC Total Staffing including Supervisors

Reno					
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed	Supv. Needed	Total Positions
0:00	38.45	5.00	5.00	2.00	12.00
1:00	29.23	4.00	5.00	2.00	11.00
2:00	27.39	4.00	5.00	2.00	11.00
3:00	23.52	4.00	5.00	2.00	11.00
4:00	21.87	4.00	5.00	2.00	11.00
5:00	19.29	4.00	5.00	2.00	11.00
6:00	25.32	4.00	5.00	2.00	11.00
7:00	34.81	5.00	5.00	2.00	12.00
8:00	49.87	6.00	5.00	2.00	13.00
9:00	57.29	7.00	5.00	2.00	14.00
10:00	61.77	7.00	5.00	2.00	14.00
11:00	65.19	7.00	5.00	2.00	14.00
12:00	66.19	7.00	5.00	2.00	14.00
13:00	68.03	7.00	5.00	2.00	14.00
14:00	69.19	7.00	5.00	2.00	14.00
15:00	66.84	7.00	5.00	2.00	14.00
16:00	69.00	7.00	5.00	2.00	14.00
17:00	68.32	7.00	5.00	2.00	14.00
18:00	61.61	7.00	5.00	2.00	14.00
19:00	64.23	7.00	5.00	2.00	14.00
20:00	62.74	7.00	5.00	2.00	14.00
21:00	64.61	7.00	5.00	2.00	14.00
22:00	59.55	7.00	5.00	2.00	14.00
23:00	47.84	6.00	5.00	2.00	13.00
Total/Avg.	1,222.16	6.00	5.00	2.00	13.00

Table 15 - Sparks ECC Total Staffing including Supervisors

Sparks

Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed	Supv. Needed	Total Positions
0:00	15.77	3.00	2.00	1.00	6.00
1:00	12.48	3.00	2.00	1.00	6.00
2:00	10.81	2.00	2.00	1.00	5.00
3:00	10.84	2.00	2.00	1.00	5.00
4:00	9.35	2.00	2.00	1.00	5.00
5:00	7.61	2.00	2.00	1.00	5.00
6:00	13.71	3.00	2.00	1.00	6.00
7:00	17.87	3.00	2.00	1.00	6.00
8:00	21.97	3.00	2.00	1.00	6.00
9:00	24.52	4.00	2.00	1.00	7.00
10:00	28.55	4.00	2.00	1.00	7.00
11:00	26.77	4.00	2.00	1.00	7.00
12:00	27.45	4.00	2.00	1.00	7.00
13:00	25.55	4.00	2.00	1.00	7.00
14:00	27.61	4.00	2.00	1.00	7.00
15:00	29.32	4.00	2.00	1.00	7.00
16:00	31.90	4.00	2.00	1.00	7.00
17:00	27.32	4.00	2.00	1.00	7.00
18:00	25.94	4.00	2.00	1.00	7.00
19:00	24.90	4.00	2.00	1.00	7.00
20:00	26.87	4.00	2.00	1.00	7.00
21:00	29.87	4.00	2.00	1.00	7.00
22:00	25.52	4.00	2.00	1.00	7.00
23:00	21.61	3.00	2.00	1.00	6.00
Total/Avg.	**524.13**	**3.42**	**2.00**	**1.00**	**6.42**

Table 16 - REMSA ECC Total Staffing including Supervisors

REMSA					
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed	Supv. Needed	Total Positions
0:00	21.32	5.00	3.00	2.00	10.00
1:00	19.68	5.00	3.00	2.00	10.00
2:00	20.03	5.00	3.00	2.00	10.00
3:00	13.77	4.00	3.00	2.00	9.00
4:00	14.55	4.00	3.00	2.00	9.00
5:00	17.55	4.00	3.00	2.00	9.00
6:00	22.74	5.00	3.00	2.00	10.00
7:00	31.77	6.00	3.00	2.00	11.00
8:00	36.10	7.00	3.00	2.00	12.00
9:00	38.45	7.00	3.00	2.00	12.00
10:00	39.39	7.00	3.00	2.00	12.00
11:00	39.32	7.00	3.00	2.00	12.00
12:00	39.74	7.00	3.00	2.00	12.00
13:00	59.29	10.00	3.00	2.00	15.00
14:00	43.29	8.00	3.00	2.00	13.00
15:00	45.74	8.00	3.00	2.00	13.00
16:00	44.26	8.00	3.00	2.00	13.00
17:00	47.26	8.00	3.00	2.00	13.00
18:00	48.13	8.00	3.00	2.00	13.00
19:00	38.90	7.00	3.00	2.00	12.00
20:00	36.77	7.00	3.00	2.00	12.00
21:00	31.13	6.00	3.00	2.00	11.00
22:00	29.65	6.00	3.00	2.00	11.00
23:00	25.71	5.00	3.00	2.00	10.00
Total/Avg.	804.55	6.42	3.00	2.00	11.42

Table 17 – Washoe County ECC Total Staffing including Supervisors

Washoe County					
Hour	Avg. # of Calls Per Hour	Call Takers Needed	Dispatchers Needed	Supv. Needed	Total Positions
0:00	13.68	3.00	4.00	1.00	8.00
1:00	10.74	3.00	4.00	1.00	8.00
2:00	9.68	3.00	4.00	1.00	8.00
3:00	9.94	3.00	4.00	1.00	8.00
4:00	9.29	3.00	4.00	1.00	8.00
5:00	7.94	2.00	4.00	1.00	7.00
6:00	12.13	3.00	4.00	1.00	8.00
7:00	14.90	3.00	4.00	1.00	8.00
8:00	19.42	3.00	4.00	1.00	8.00
9:00	22.55	4.00	4.00	2.00	10.00
10:00	25.90	4.00	4.00	2.00	10.00
11:00	27.84	4.00	4.00	2.00	10.00
12:00	28.45	4.00	4.00	2.00	10.00
13:00	26.71	4.00	4.00	2.00	10.00
14:00	28.90	4.00	4.00	2.00	10.00
15:00	29.87	4.00	4.00	2.00	10.00
16:00	30.71	4.00	4.00	2.00	10.00
17:00	28.10	4.00	4.00	2.00	10.00
18:00	25.77	4.00	4.00	2.00	10.00
19:00	23.94	4.00	4.00	2.00	10.00
20:00	23.00	4.00	4.00	2.00	10.00
21:00	20.58	4.00	4.00	2.00	10.00
22:00	16.45	3.00	4.00	1.00	8.00
23:00	15.00	3.00	4.00	1.00	8.00
Total/Avg.	481.48	3.50	4.00	1.54	9.04

4.6 Methodology for Staffing Recommendation

FE uses the Association of Public-Safety Communications Officials (APCO) Project "Responsive Efforts to Address Integral Staffing Needs" (RETAINS) criteria to determine the number of employees required to staff the projected number of workstations. The following steps, data application and calculations, are performed in accordance with the APCO RETAINS guidance.

For this report, ***FE*** used the annual number of work hours per employee as provided by each ECC. Calculations were completed for each individual ECC to recommend staffing, and then collectively for the combined total of staff recommended for all ECCs combined. The staffing calculation and recommendations formula utilizes the total number of annual work hours per employee and subtracts the reported standard leave such as vacation, personal, compensation, training, and sick time, to arrive at the total annual net available work hours per employee. The net available work hours are the actual number of hours an employee is available to be scheduled each year.

Each ECC's net available hours were determined by starting with the assigned annual number of work hours for each employee which ranged from 2080 – 2184 hours/year. The total 'not available hours' average includes leave, sick time, training, and breaks were provided by each of the ECCs (see below) and subtracted from the average annual hours to arrive at the net available working hours in each ECC.

The total not available hours per ECC equal the total assigned hours per year minus average leave hours per year.

Table 18 - Total Not Available Hours by ECC

PSAP	Vacation / Holiday	Sick	Personal / Comp	Training	Military / FMLA	Other - Annual	Total Not Available
	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Reno	267	69	29	24	203	231	823
REMSA	150	0	0	0	24	0	174
Sparks	344	84	114	40	240	40	862
Washoe County	130	113	103	0	0	0	346
Average	**223**	**67**	**62**	**16**	**117**	**68**	**551**

The net available working hours are calculated by subtracting the average annual total not available hours and total average break time from the average hours assigned per year.

Table 19 - Net Available Hours by ECC

PSAP	Total Not Available	Hours per Year	Available Hours	Net Available Hours
	Annual	Annual	A	Hour
Reno	823	2080	1257	1131
REMSA	174	2184	2010	1843
Sparks	862	2080	1218	1066
Washoe County	346	2080	1734	1604
Average	551	2106	1555	1411

The combined average of assigned annual number of work hours is 2106 for all ECCs. The combined annual average of leave hours per employee across the ECCs are as follows:

- Vacation and holiday time – 223 hours
- Sick – 67 hours
- Personal/Comp Time - 62 hours
- Training – 16 hours
- Military/FMLA - 117 hours
- Other (meetings, light duty, special assignments) – 68 hours
- Lunch/Breaks (based on 60 minutes average break time) - 144 hours

The total average net available work hours per employee at each ECC is **1411** hours/year. This figure is low compared to the average net available working hours across the industry and in ***FE's*** experience (which is in the range of 1700 hours and upwards annually). This is likely because there are discrepancies in reported leave hours across each ECC as outlined in the recommendations below.

To arrive at the recommended staffing model, the final number of employees required to cover call-taking functions is added to the number required for dispatch functions, and dedicated Supervisor positions; this determines the total required number of ECC staff.

4.6.1 Recommended Staffing Model

- ***FE*** recommends a horizontal operational model with dedicated call-taking and dispatch positions in each ECC, based on the estimated hourly call volume in each ECC.

- The area of focus for this analysis was the impact on regional call answer and processing. For this staffing analysis, the number of current dispatch positions (workstations) provided by each ECC is what was used to calculate and recommend staffing levels for dispatchers. To determine the appropriate number of dispatch positions outside of what each ECC is currently allocating requires an extensive workload analysis. While that level of analysis is outside the scope of this report, ***FE*** can provide further detailed analysis in the future should an agency so desire.
- ***FE*** recommends that for future staffing analysis, ECCs review and agree to a standard process of reporting their average annual leave, sick time, training, and personal/comp time for staffing analysis. These figures impact the overall net available hours for staffing calculations in each ECC and collectively across all four. There is significant variation in the figures reported from each ECC, and in some ECCs the average annual leave hours were much higher than what the majority of ECCs report. This could be due to several factors: annual vacation and other leave really is that high for a center due to length of employee tenure and annual vacation entitlement, extended medical leave, a miscalculation in figures reported, not reporting all leave hours, or a misunderstanding of what data was being requested. A closer look at how averages are reported and ensuring they are consistent from each ECC will support accurate calculations for staffing projections while ensuring a one-to-one comparison across all ECCs.

Staffing Recommendations for all ECC's Combined

FE recommends the overall number of authorized full-time ECC employees across all ECCs to be 167 full-time employees (without turnover factored in) and 199 full-time employees (with turnover factored in). The following tables provide the recommended personnel count for all ECCs in the region, with and without turnover.

Current Staffing in All ECC's

Table 20 – Current Staffing All ECCs by Position

Total Employees - All ECCs		
Job Title	**# of Authorized Full-Time Positions**	**Actual # of Full-Time Employees**
Supervisors	25	18
Call Takers	6	2
Telecommunicators/ Communications Specialists	123	105
Total	**154**	**125**

Table 21 - Recommended ECC Staffing for all ECCs Combined

Recommended Staffing – All ECCs Combined		
Position Title	**Total Number of Employees – no Turnover**	**Total Number of Employees – with Turnover**
Shift Supervisors	25	30
Dispatchers	87	104
Call Takers	55	65
Total PSAP Staff	**167**	**199**

The model for combined recommended ECC employees above assumes the following:

- Horizontal operational model with dedicated call-takers who do not perform any dispatch responsibilities, and dedicated dispatchers who do not perform any call-taking responsibilities.
- Dedicated shift supervisors who are not tasked with any call-taking or dispatch responsibilities and a sufficient number of supervisors on duty when required to satisfy best practices in span of control.

Staffing Recommendations for Each ECC

Below are tables of current staffing for reference, and recommended staffing for each individual ECC based on the net available work hours for each one. Recommended staffing includes two totals; one for when turnover *is* and one when turnover *is not* factored in.

Table 22 - Reno ECC Current Staffing by Position

Current Staffing – City of Reno		
Job Title	**# of Authorized Full-Time Positions**	**Actual # of Full-Time Employees**
Supervisors	9	7
Telecommunicators	42	40
Call Takers	4	4
Total	**55**	**51**

Table 23 - Reno ECC Recommended Staffing by Position

Recommended Staffing - City of Reno		
Position Title	**Total Number of Employees – No Turnover**	**Total Number of Employees – With Turnover**
Shift Supervisors	16	18
Dispatchers	39	44
Call-Takers	47	53
Total ECC Staff	**102**	**115**

Table 24 – Sparks ECC Current Staffing by Position

Current Staffing – City of Sparks		
Job Title	**# of Authorized Full-Time Positions**	**Actual # of Full-Time Employees**
Supervisors	5	2
Telecommunicators	18	13
Total	**23**	**15**

Table 25 – Sparks ECC Recommended Staffing by Position

Recommended Staffing - City of Sparks		
Position Title	**Total Number of Employees – no Turnover**	**Total Number of Employees – with Turnover**
Shift Supervisors	8	11
Dispatchers	16	23
Call-Takers	28	39
Total ECC Staff	**52**	**73**

Table 26 - Washoe County ECC Current Staffing by Position

Current Staffing – Washoe County		
Job Title	**# of Authorized Full-Time Positions**	**Actual # of Full-Time Employees**
Supervisors	7	5
Call Takers	6	2
Telecommunicators	32	26
Total	**45**	**33**

Table 27 – Washoe County ECC Recommended Staffing by Position

Recommended Staffing - Washoe County		
Position Title	**Total Number of Employees – no Turnover**	**Total Number of Employees – with Turnover**
Shift Supervisors	8	10
Dispatchers	22	25
Call-Takers	19	22
Total ECC Staff	**49**	**57**

Table 28 - REMSA ECC Current Staffing by Position

Current Staffing - REMSA		
Job Title	**# of Authorized Full-Time Positions**	**Actual # of Full-Time Employees**
Supervisors	4	4
Communication Specialists	31	28
Care Coordinators	7	7
Quality Assurance	3	3
Other	3	3
ACS	8	8
RNs	4	4
Total	**35**	**32**

*The Care Coordinators, Quality Assurance, Other, ACS, and RNs staffing positions in REMSA's current staffing chart were not included in the staffing analysis. The recommendations are for Supervisors and Communication Specialists only.

Table 29 - REMSA ECC Recommended Staffing by Position

Recommended Staffing - REMSA		
Position Title	**Total Number of Employees – no Turnover**	**Total Number of Employees – with Turnover**
Shift Supervisors	9	12
Dispatchers	14	18
Call-Takers	30	38
Total ECC Staff	**53**	**68**

Appendix A - Background

As an adjunct to the Regional Model and Recommendations Memorandum, the following information is provided for background and to provide additional information that may be of assistance to the City of Reno, City of Sparks, Washoe County, and REMSA is moving forward with its consideration of the recommendations being presented.

4.7 Consolidation Models

4.7.1 ECC Consolidation Models

When discussing how to achieve the most efficient and effective level of emergency communications service, it is helpful to understand different types of consolidation models. Therefore, within the constraints of the Scope of Work for the regionalization study, this section provides an overview of the most common ECC consolidation models, how they may support regionalization, and the benefits and challenges of consolidation. Similarly, much of the consolidation overview and information can also be applied to consolidation of regional response.

4.7.1.1 Full Consolidation

Full consolidation refers to the consolidation of all 9-1-1 answering (wireline and wireless) and emergency dispatch functions (law enforcement, fire, and EMS) within a defined geographical area into a single organization. This geographical area can include one or more levels of government (e.g., county, city, or township). The highest level of service level improvement occurs under this model. Key characteristics include:

- Services for law enforcement, fire, and EMS call taking and dispatching.
- The structure of the consolidated ECC is often a stand-alone agency or a separate department within an existing county or region, or as an independent organization.
- A fully consolidated operation houses employees in a single facility or among two or more regional facilities.
- Commonly configured as a single organizational or reporting structure, which may include a board, advisory and/or user group as a mechanism for served agencies to provide input and resolve issues.
- Combined PSAP systems, which may consist of:
  - Call Handling System
  - Computer Aided Dispatch
  - Radio
  - Logging recorders

- One consolidated system to upgrade and maintain.

4.7.1.2 Partial Consolidation

A partial consolidation is the combining of emergency communications for multiple public safety agencies within a specified geographical area, but not all agencies. For example, several Fire Departments may combine communications into a single ECC, but other Police and EMS ECCs handle communications individually. Model characteristics include:

- Communications services for one or two disciplines (law enforcement, fire, and/or EMS), but not all.
- Typically set up as part of an existing agency. For example, two Fire Departments decide to combine 9-1-1 call taking and dispatch functions, so expansion of an existing facility and systems takes place to include the new agencies.
- Usually falls under the organizational structure of the host agency. However, in urban areas, the newly consolidated ECC may be large enough to be a stand-alone agency or department.

4.7.1.3 Co-Location

A co-location of ECCs refers to the sharing of physical space and, at times, critical ECC technology such as Computer Aided Dispatch (CAD), 9-1-1 answering and call handling technology, radio consoles, and logging recorders, while remaining separate entities. For example, communications for police and fire reside in the same physical space but each remains part of its original organization. Governance for each department remains under its original organization as well. Model characteristics include:

- Participants seeking cost efficiencies by sharing physical space and technology without giving up direct control of actual call taking and dispatching. This model most often occurs when variables do not allow for an actual full or partial consolidation of services.
- Can be used as a precursor to full consolidation. For example, communications for multiple law enforcement departments could be co-located as the initial step in full consolidation. The agencies work side by side while cross-training is completed, and issues associated with creating a single organization are resolved.
- Sharing of infrastructure costs.

The City of Reno and Washoe County operate from a co-located ECC.

4.7.1.4 Shared Technology or Virtual Consolidation

As technology evolves, the ability for ECCs to share key systems with or without sharing physical space is now a reality. In this model, participating agencies create agreements to jointly procure or share key ECC systems such as 9-1-1 answering equipment, CAD, logging recorders, GIS, and radio systems and consoles. This model is a Host/Remote configuration using redundant, reliable high-speed connectivity between the shared services host location and each remote dispatch center. Although not actually an ECC consolidation in the same manner as the other alternatives, this alternative does offer participants some consolidation benefits including:

- May include co-located ECCs as well as separate stand-alone ECCs.
- Potential cost efficiencies by purchasing single systems for use by all participants rather than separate systems for each ECC.
- Improved situational awareness through a shared CAD system.
- Improved interoperability if a single radio system is used.

With the exception of REMSA, all stakeholder agencies in this project already operate in a virtual consolidation model and share CAD, radio, and 9-1-1 call handling solutions and infrastructure technology. In this model, these agencies can benefit from the virtual consolidation that already exists and have the existing platform to support regionalization once agencies create and implement standardized 9-1-1 call answer, triage, and processing procedures and workflow across their centers.

This model allows PSAPs to process each other's 9-1-1 calls for law enforcement or fire agencies when necessary. Although EMS calls could be processed by primary PSAPs, and are in this model when backup is required, but the ECCs are not virtually consolidated and do not operate on the same CAD or radio system, making efficient and electronic call sharing and dispatching difficult.

In the foundational model, all ECCs must be virtually consolidated to achieve the interoperability necessary to provide full regionalization.

4.8 General Benefits of Consolidation

The general benefits to be gained from consolidation include:

- Interoperability among agencies served through proximity, improved situational awareness, and shared systems – enhancing interoperability and information sharing among agencies.

- Improved emergency management coordination for disaster preparedness, response, and recovery. Assists in readiness regarding manmade and natural threats, day-to-day localized issues and response, and large-scale regional, provincial, or national events.
- Pooling of resources: cost efficiencies realized with economies of scale enhance capabilities and service to responders and citizens.
- Improved situational awareness within the communications center and for user agencies.
- Service efficiencies and opportunities for public safety agencies to better pursue their missions within a safer responder environment which includes enhanced information sharing across all disciplines.
- Improved technology and sharing of information.
- The reduction of 9-1-1 call transfers.
- Reduction in call processing time that can equate to faster emergency response times.
- Improved quality of service to citizens and responders through standardized call handling and dispatch protocols.
- Improved command and control.
- The ECC is typically housed in a facility that is appropriately sized and meets the current NFPA 1225 (2022) standards for a hardened and secure facility.

4.9 Considerations for Consolidation

In ***FE's*** experience, stakeholder agencies deliberate consolidation, in any of its models, for many reasons. Commonly cited reasons include:

1. Service level improvements – An important benefit of consolidation is service level improvements. The degree and nature of the improvements will vary depending on the efficiency of each individual ECC considering consolidation. 9-1-1 call-takers and dispatchers are truly the "first, first responder on the scene" and can substantially influence the outcome of an incident. The types of service improvements typically achieved following consolidation include:

    a. Reduction or elimination of the transfer of 9-1-1 calls between ECCs which improves response times and lowers the potential for human or technology errors.

    b. Regional awareness of workload and the deployment of field personnel. This awareness leads to improved usage of resources regionally and

better management of large-scale or multi-jurisdictional events from a single point of control.

c. Sharing of physical space enables communications between call-takers, and dispatchers across all disciplines to be virtually instantaneous. These improved communications enable field personnel to receive information more quickly and accurately which is particularly important in multi-jurisdictional incidents. This communication is the least tangible or quantifiable benefit of consolidation but is one of the most key.

d. If large enough, a consolidated ECC can utilize a call-taker/dispatcher organizational structure. This structure enables the call-takers to focus solely on the incoming call and obtain the best information possible. The dispatcher's ability to focus solely on field personnel improves field personnel safety.

e. Standardized training of all ECC employees increases regional consistency and service delivery.

f. A consolidated environment may offer the benefit of state-of-the-art technology, improved training, and expanded career opportunities that would not be otherwise financially or organizationally feasible in individual centers.

2. Another primary reason cited for consolidation is cost savings. In our experience, while cost savings could be a possibility in the future, it is *critical* that decision makers understand two points.

a. First, the goal of consolidation should not be cost savings but rather service level improvements. A common misconception is that consolidating will result in significant personnel reductions thus significant cost savings. Consolidations do not normally involve any staff reductions, but rather better utilization of current staff and their skills and function in the new ECC workflow model. Cost efficiencies come from the elimination of redundant and expensive technology and instead sharing once instance of CAD, 9-1-1 answering equipment, radio consoles/systems, and logging recorders. The single set of technology and systems found in a consolidated environment reduces costs associated with procurement, connectivity, and future maintenance/support costs.

b. Second, in scenarios where cost savings are achievable, the actual realization of the savings may not occur for many years. The consolidation process can be expensive and can generate substantial start-up and capital costs for facility and technology needs. These costs delay any cost savings.

4.9.1 Situational Awareness

Situational awareness is one of the key benefits of consolidation. Situational awareness in an emergency communications center can best be defined as having the following components:

- Awareness of public safety activity regionally rather than a view that is limited to a single jurisdiction.
- The ability for rapid access of call information to provide context and actionable intelligence by reducing the number of ECCs or filters that the information must go through.
- The ability to make well informed decisions based on information received firsthand from multiple callers, incident commanders, or command officers.

The presence of multiple ECCs, especially when the disciplines (police, fire, and EMS) are separated, can cause delayed responses, poor decision making, and an increase in miscommunications and/or human error. Much like the “telephone game” of the past, during major incidents when information must pass through multiple people, the more distorted it becomes and the longer it takes to achieve the correct incident response. Critical information regarding incident location, injuries, and information relevant to scene and responder safety, takes longer to disseminate to each dispatch center and may or may not be conveyed accurately. The most efficient method of managing a major incident is from a single point of control, the ECC. Scene commanders can communicate updates and requests to a single point of contact. The ECC maintains the larger picture and can meet requests, anticipate future needs, line up resources and recognize the need to move available resources to other parts of the region for coverage purposes.

On a smaller, but no less important scale, situational awareness is critical in the everyday functioning of an ECC. Examples of the daily benefits of situational awareness in a consolidated communications center include:

- Coordination of multi-jurisdictional incidents (i.e.: pursuits, MCI events occurring across multiple jurisdictions) is instantaneous when the dispatchers are in the same room and can hear the incident in real-time.

- Dissemination of key information to field responders is immediate and can facilitate the apprehension of suspects and the transmission of scene safety issues to responders sooner.
- The use of AVL technology within a single regional ECC can graphically show the field response to an incident making resource management more effective.
- The ability of call takers and dispatchers to see and hear regional activity, understand how it may impact the areas for which they are responsible, and quickly act.

Situational awareness benefits of consolidation are often discounted in importance when, in fact, it is critical to establishing the most efficient emergency communications system possible for communities and the agencies an ECC serves.

4.9.2 Support Staff

The operation of a public safety communications center is dependent on the skills and knowledge of a dedicated technology support team. This team works daily to provision, maintain, and support the critical technology systems installed in the communications center in addition to technology in the field used by stakeholder agencies. These systems include, but are not limited to:

- Computer Aided Dispatch (CAD) System
- Mobile data system (MDS)
- Interfaces
- Police Records Management System (RMS)
- Fire RMS
- 9-1-1 answering equipment
- Management information systems (MIS)
- Administrative phone systems
- Radio dispatch console system (RDCS)
- Land Mobile Radio (LMR)
- Microwave systems
- Radio subscriber units
- Logging recorders
- Master clocks
- GIS/Mapping for CAD/RMS/MDS
- Personal computers, laptops, tablets and smartphones, and other devices
- Back-room servers and storage devices

- Network connectivity
- Network security
- Many more applications, hardware, network components, security profiles, etc.

IT is a critical component of today's public safety technology. In the future, and particularly with NG9-1-1 implementation, more and more systems are IP-based and require significant technical expertise and knowledge to install, support, and maintain. More than ever before public safety agencies need the assistance that municipal and/or agency IT resources can provide.

In agencies with dedicated IT and support staff, these vital team members provide continuity in supporting, troubleshooting, and maintaining ECC critical systems. Often the same resources have done so for many years. They know the history, vendor contacts, and steps needed to make necessary corrections, updates, adjustments, or modifications to keep systems operational. More importantly, they have a thorough understanding of the importance of these systems and applications to the public safety community.

Dedicated IT and support teams understand public safety operations and are familiar with when and how to make the necessary corrections or updates to those systems while minimizing operational disruptions to the ECC and stakeholders.

4.9.3 Minimum Staffing Requirements

Emergency Communications Center best practices and the NFPA 1225 standards advocate a minimum of two telecommunicators on duty at all times in any public safety communications center for the following reasons:

- One person on duty can quickly become overwhelmed by a significant single incident or multiple routine incidents.
- A single person can only handle one primary dispatch channel or talk group that requires constant and unobstructed attention to ensure responder safety. One person cannot process an incoming emergency phone call while at the same time processing an urgent radio message from a field unit.
- Having at least two trained telecommunicators on duty is the only way to ensure a trained employee(s) is always available in the dispatch center. Firefighters, paramedics, police officers, or other response staff 'sitting in' for the dispatcher while they are on a meal or bathroom break is not a viable solution as the skill sets differ significantly. Telecommunicators require specialized skill sets to work with increasingly complex technical systems.

- If the ECC provides any type of dispatch protocol/scripted query and/or instructions to callers, then more than one employee must be on duty.
- Relief factors and requirements for the employees for routine/required/scheduled breaks.
- If a single telecommunicator on duty has a medical emergency, the communications center would temporarily shut down leaving telephone and radio calls unanswered.

In each of the stakeholder ECCs in the region, due to the size and minimum staffing requirements in each, there are no concerns with minimum staffing falling below two personnel on duty at a time. This section was provided only as background for reasons regions consider consolidating.

4.10 Roadblocks to Consolidation

ECC consolidation is a complex process and one with potential for some agencies and stakeholders to see negatively. The viability of any consolidation model or type is directly connected to two factors: politics and funding.

The negative views most commonly raised include the following:

4.10.1 Political Will

Political will is a requirement for successful ECC consolidation and is the number one determinant for success or failure. Consensus or buy-in from operational and executive level stakeholders and stakeholder groups, and commitment from decision makers to enter into an agreement are the key thresholds for advancing beyond a study or planning activity.

4.10.2 Funding

As with all shared services initiatives, ECC consolidation requires an identifiable and secured funding mechanism. In the three primary PSAPs, funding for the ECCs is derived through each municipality's tax-based budget and through additional public safety funding and 9-1-1 levies, such as the 911 Emergency Response Advisory Committee. In REMSA, funding is received through fee-for-service EMS provision but can only be invoiced or collected when a patient is transported.

If consideration is given to future consolidation efforts, the regional agencies and their municipalities will need to consider a funding model to support capital start-up and transition costs, and ongoing operating costs for a consolidated center. ***FE*** recommends a shared funding model approach among agencies in the Region. Although not part of the scope of this project or memo, further funding models, analysis and recommendations can be provided by the ***FE*** team to support this endeavor in additional phases of regionalization, or if consolidation progresses.

4.10.3 Loss of Control

Depending on the consolidation model and organizational structure chosen, loss of control will likely surface as a challenge to overcome. In a consolidated model, fire agencies that currently hire and manage call-taking and dispatch staff must relinquish control of these employees as part of the new organization.

Complaints and other personnel investigations and any resulting training or disciplinary actions become the responsibility of the new operating management team which may be viewed as a negative by some agencies. In a co-location, and/or shared facility and technology consolidation, where staff are under a separate management hierarchy for each agency, physical relocation of employees to another facility is still a concern, potentially creating the perspective of loss of control and/or autonomy. Staff may also be concerned with a loss of relationship between the department and responders they work with as they will no longer work in the same facilities.

Often, the level of control the consolidated ECC would have over the responses of the participating agencies is misunderstood. The role of a consolidated center is to implement dispatch plans as developed by each response agency, and not to dictate response levels or plans to each agency. For example, a fire agency will still have complete control over the type or nature of the incidents they respond to and the level of that response.

While standardization among participating agencies is recommended to the degree possible, each agency is still able to customize its responses to the unique needs of the community it serves. Finally, the ECC dispatches calls for service according to each agency's dispatch plan, and any dispatch can be overridden by a fire agency command officer.

A primary objective for any consolidated communications center should be to develop as a service-oriented organization. The primary responsibility is to provide a level of service acceptable to all user agencies. Although some level of standardization is necessary, the

center should have the technology and tools to provide the levels of service dictated by their stakeholders.

5. Recruiting & Training Program Recommendations

All ECCs already have some of the recommendations below included in their training programs. Wherever ECCs are already providing this and meeting standards, continue to do so. In areas where they are not, consider the recommendations to incorporate into your training program.

Recruit Training, Continuing Education & Professional Development

- A recruit training classroom component that includes all foundation training listed above, in addition to area familiarization, call taking and dispatch theory, review of policy and procedures, training on ECC technology and process, and a simulation lab that allows recruits to practice scenario-based calls and perform tasks in a non-emergency and stress-free environment prior to training in the live ECC setting.

- A recruit training practical component with an assigned coach/mentor who has been certified to deliver training or is a certified Communications Training Officer as per the standards outlined below.

- Updated policy and procedures that include step by step process for job tasks in the ECC.
- That the recruit training program includes the recommended components in the APCO ANS 3.103.2-2015 Minimum Training Standards for Public Safety Telecommunicators.

- Establish continuing education and professional development training that is treated as priority, and that efforts are made to regularly schedule training days.

- That joint training in police, EMS, and live fire event opportunities be offered to ECC staff to participate alongside the response agencies they dispatch.

Training Officers and Instructors

That the training program adheres to industry standards and any person creating or delivering training be certified to do so as per:

- NFPA 1225 (2022) Chapter 7: Public Safety Communications Training Officer (NFPA 1061) and Chapter 10: Public Safety Communications Training Coordinator (NFPA 1061)

- APCO ANS 3.108.2-2018 Core Competencies and Minimum Standards for Public Safety Communications Instructor
- APCO ANS 3.104.2-2017 Core Competencies and Minimum Standards for Public Safety Communications Training Coordinator
- APCO ANS 3.101.3-2017 Core Competencies and Minimum Standards for Public Safety Communications Training Officer (CTO)
- NENA Communications Training Officer (CTO)

Supervisor Training

That a supervisor training program at ECCs include:

- Supervisor qualifications and job requirements that comply with NFPA 1225 (2022) Chapter 8: Public Safety Communications Supervisor (NFPA 1061).

- Develop and implement a formalized supervisor training program where potential supervisors are trained and mentored for the role well before they are promoted, and that continuous leadership development occurs throughout their tenure.

- Ensure continued education and professional development be included in the program, and that ECC staff participate in joint training initiatives between fire, police, and the Centers, including scenarios and table-top exercises for high acuity, low frequency incidents such as Active Assailant situations.

That ECC supervisors, Directors, Managers, and Chiefs in charge of the ECC receive training and education pertinent to leadership and management in the Public Safety Communications industry and in compliance with:

- NFPA 1225 (2022) Chapter 11 Public Safety Communications Center Manager/Director (NFPA 1061)
- APCO ANS 3.102.2-2017 Core Competencies and Minimum Training Standards for Public Safety Communications Supervisor
- APCO ANS 3.109.1.2014 Core Competencies and Minimum Training Standards for Public Safety Communications Manager/Director

6. Franchise Agreement – REMSA & Washoe County Health District

The information below expands on the Operations and Technology Gap Recommendations (Back Up REMSA Support) and includes extracts from the Franchise Agreement to provide further context and relevance.

5.2 Dispatch: REMSA is the community emergency medical dispatch center for the Franchise Service Area. REMSA will be responsible for coordinating all EMS service radio traffic for patient reports to the area hospitals and will record these transactions.

REMSA shall furnish at its own expense a system status management (SSM) based computer aided dispatch (CAD) system. When the Washoe County/Reno PSAP and Sparks PSAP Tiburon CAD systems are installed and upgraded the REMSA CAD system shall at a minimum, be capable of interfacing in real time with the Washoe County/Reno and Sparks CAD systems (henceforth public safety CADS); contributing to a complete electronic record of response times from all dispatch activities.

REMSA shall furnish and maintain at its own expense its share of a two-way interface between the public safety CADs and REMSA's CAD. This interface shall at a minimum provide for the instantaneous and simultaneous transmission of call-related information and unit status updates between the public safety CADs and REMSA's CAD. At a minimum, this interface shall facilitate:

(a) CAD call creation and forwarding to one or more agencies;
(b) Real-time resource availability and status changes of all participating agencies;
(c) The capability of communicating between PSAPs and field units in which mobile data terminals (MDTs) are installed; and
(d) The ability to view run time information for all calls.

Automatic Vehicle Location (AVL). REMSA shall furnish and maintain at its own expense its share of a two-way interface between the public safety CADs and REMSA's CAD which provides two-way communication and visualization of AVL information regarding REMSA ambulance locations and EMS vehicles in order to allow for the closest EMS responder to respond within each response agency's jurisdiction.

FE recommends that the managers of the ECCs continue to work on finalizing agreements for providing back up support on 9-1-1 calls requiring EMS, and that Washoe

County Health District be included should any adjustments to the Franchise Agreement be necessary to support it. This recommendation is aligned with the regionalization definition of "a *911-call process that serves the community by prioritizing the user experience and the appropriate deployment of resources through a reduction in duplicated processes, improved use of technology and resources, and simplified governance".*

Agreements should include clearly defined procedures for when back-up support will be enacted for medical calls to ensure a standardized approach across participating ECCs and consistent service delivery to the public.

It is a Franchise Agreement requirement for REMSA and necessary for all ECCs to expedite the implementation of a CAD-to-CAD interface and two-way communication and visualization of AVL data to allow for call and unit location information sharing to support the dispatch of closest most appropriate resources across ECCs.

- This is especially important for EMS call processing at primary ECCs where call information can be provided electronically reducing risk in incorrect data entry of call information, reducing time for REMSA to enter call information and dispatch resources, and reducing EMS response time to the scene.

- The CAD to CAD and two-way communication and visualization of AVL provide the necessary interoperability to allow the entire regional ECC CAD systems to view status and location of units to be programmed to recommend the closest most appropriate fire resources to calls.

As per Franchise Agreement Article 9 *Personnel and Equipment* outlines REMSA's accreditation requirements as follows:

> *9.2 Dispatch Accreditation: REMSA shall maintain the National Academy of Emergency Medical Dispatchers accreditation of the Accredited Center of Excellence.*

FE has confirmed with the International Academy of Emergency Dispatch (IAED) that REMSA's Accredited Center of Excellence (A.C.E.) accreditation status will not be impacted by other ECCs providing EMD contingency/backup support who are not accredited.

The information below expands on the Operations and Technology Gap Recommendations (Technology - Radio) and includes extracts from the Franchise Agreement to provide further context and relevance.

The REMSA Franchise Agreement of August 25, 2022 Article 5 *Communications* states:

5.1 Radio: REMSA shall establish 800 MHz communications capabilities with the current 911 system requirements and transition in the future to maintain compatible communications with 911 systems as technologies evolve as defined by the DISTRICT.

REMSA reported that funding and a lack of radio IS to support migration and maintenance of NSRS was a hindrance and they have remained on their existing radio system. Although limited, this system has the capacity to patch and interoperate with the NSRS system today.

FE recommends the following:

- Confirm what "*maintain compatible communications with 911 systems as technologies evolve as defined by the DISTRICT*." means in relation to interoperability among public safety agencies. REMSA has a radio system that supports communication between the ECC, the EMS response units and personnel, and the radio traffic for patient reports to the area hospitals and the recording of all radio traffic as per Article 5.2 in the agreement. T

- Investigate feasibility of REMSA migration to NSRS; what funding, if any, can be made available to support migration?

- If migration to NSRS is not possible, investigate how the two radio systems could be interfaced or architected for interoperability to support the regional model.

- Review and standardize the naming conventions for programming public safety radios across the region to ensure assignment of unique agency and unit/user IDs. This provides visual awareness at the radio console of what agency the alarm is coming from and quicker acknowledgement from the respective ECC supporting them.

Create a region wide radio emergency alarm procedure for all ECCs on the NSRS system to identify who is responsible for acknowledging what alarms at each ECC, and what the backup procedure is if an alarm has gone unacknowledged by an ECC after a specific amount of time.

7. Next Steps

7.1 Action Items from First Workshop

The list of action items from the first workshop in April 2023 has been largely implemented. Stakeholders were assigned action items and have been exceptional in working diligently in regular meetings to address issues and implement changes to support regionalization. Any remaining items can continue to be implemented and can be added to the action plan for regionalization.

7.2 On Site Workshop

An onsite workshop was completed on May 30, 2023. The ***FE*** team and regional stakeholders discussed the recommendations memo and the region's decided approach. A high-level action plan for implementation can be drafted as a result of this workshop.

7.3 Post Workshop Next Steps

FE met with agencies, who committed to working together and moving forward toward regionalization. A final report review and discussion was conducted during the workshop. Following, a high-level transition strategy workshop was held and early in the session, it was decided that the ECC leaders would be best to lead the efforts in continuing with identifying and implementing action items from the first workshop, from the final recommendations report, and as a result of the transition discussions and workshop.