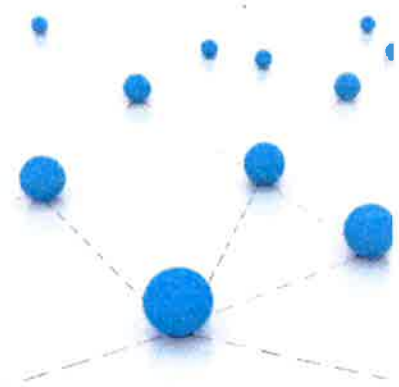

Report for

PSAP Consolidation Cost Study

Prepared for

Winnebago County ETSB

June 2016 ©

CDI® L.R. Kimball

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EXECUTIVE SUMMARY

L.R. Kimball (Kimball) contracted with the Winnebago County Emergency Telephone System Board (ETSB) to conduct a thorough cost analysis for the consolidation of the Winnebago County 9-1-1 System with the City of Rockford 9-1-1 System.

Winnebago County (County) is located in northern Illinois and is part of a ten-county regional initiative called the Northern Illinois Next Generation 9-1-1 Alliance (NINGA). The ten county ETSBs have joined together in a unified planning effort to migrate enhanced 9-1-1 (E9-1-1) capability to Next Generation 9-1-1 (NG9-1-1). Currently, Winnebago County is involved in a NINGA NG9-1-1 project (NINGA project) to procure a systems integrator for a NG9-1-1 host/remote system. This system integrator will bring together service providers and vendors to provide component subsystems into a complete functional NG9-1-1 system and assure that all subsystems function together. A consolidation study was completed in July, 2015 with the assumption that Winnebago County will be moving forward with consolidation independent of this NINGA project.

Kimball examined operations within the County, collected data through several meetings with the County and utilized all of the data and information collected for the consolidation study. For that consolidation study, an assessment of the PSAP conditions was performed to determine how each of the PSAPs operate and how leadership works with staff and how staff works with each other, as well as what kind of facilities and technologies exist at each PSAP. Kimball's findings based on the data collection and operations observation is detailed in this report. For this cost analysis, Kimball compiled all of the information to identify cost estimates for migrating all 9-1-1 services from two County facilities to one.

Based on the data collected and Kimball's analysis of that data, Kimball estimates the cost of maintaining the City of Rockford PSAP as a hot backup to the Winnebago County PSAP, which will be the primary PSAP. This study examines the capital cost of the transition as well as what the consolidated center will cost yearly.

The analysis, below details the cost estimates associated with the Winnebago County PSAP consolidation.

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1. INTRODUCTION

1.1 Scope of Work Summary

The Winnebago County ETSB contracted with Kimball to provide an emergency dispatch services consolidation cost analysis. This report examines and identifies cost estimates of migrating all 9-1-1 services from two County facilities to one. The ETSB identified that the Winnebago County 9-1-1 Center will be the primary PSAP and the City of Rockford 9-1-1 System will be the backup PSAP. This analysis examines the capital costs of the transition as well as what the consolidated center will cost yearly.

1.2 Key Definitions

1. **Public Safety Answering Point (PSAP)** – An emergency communications facility with enhanced 9-1-1 capabilities, operated on a 24-hour basis, assigned the responsibility of receiving 9-1-1 calls and dispatching, transferring, or relaying emergency 9-1-1 calls to other public safety agencies or private safety agencies.
2. **Primary PSAP** – A PSAP that receives 9-1-1 calls directly from the callers.
3. **Consolidated PSAP** – A PSAP where communications for one or more public safety agencies choose to operate as a single emergency communications entity.
4. **Dispatch Functions** – Dispatch functions include all functions and tasks associated with sending a police, fire, or EMS response to a 9-1-1 call and any field personnel support. Dispatching is done via radio or mobile data device. These functions may begin once the call taking process is complete or simultaneously with the call taking process, depending on the PSAP/dispatch configuration.

1.3 Methodology

1.3.1 Data Collection

Kimball performed a comprehensive review of the existing conditions and a thorough analysis using our industry experience and expertise, similar project experience in other regions and accepted best practices across the industry. Kimball utilized additional data that was collected during the NINGA project and the PSAP visits to Rockford 9-1-1 and Winnebago County 9-1-1 that were performed during the consolidation study. Additional information utilized from the consolidation study include PSAP observations, employee and key stakeholder interviews and an additional survey which included the following subject areas:

- Current organizational structure and governance
- Staffing numbers and classifications
- Employee Schedules
- Call processing and dispatch methodology
- Call volumes (9-1-1 and administrative calls)
- Call process statistics
- Event volumes (calls for service and officer self-initiated)
- Ancillary duties
- Training/quality assurance standards and requirements
- Pay ranges
- Budget

- Computer aided dispatch (CAD), records management system (RMS), geographic information system/automatic vehicle location (GIS/AVL), mobile data, radio consoles, customer premise equipment (CPE), logging recorders and PSAP technology

In addition to the information above, Kimball worked closely with the Winnebago County ETSB to collect cost information necessary to assess where the system stands today financially and to estimate what those costs will be moving forward into PSAP consolidation. Kimball also collected additional technical information to accurately analyze consolidation costs. This information includes at a high level:

- Radio system network diagrams
- Radio frequency lists
- NG9-1-1 documentation
- CAD network diagrams
- CAD maintenance agreements
- Police and Fire Records Management System information
- Mobile data computers
- Radio dispatch console SOW
- Logging recorder descriptions
- Current shared technologies between the two centers
- Network connectivity diagrams
- Staffing information

In addition, the ETSB identified, for the purposes of this study, that the Winnebago County 9-1-1 center will be the primary PSAP and the City of Rockford 9-1-1 System will be the backup PSAP. The Kimball team compiled and analyzed the data into this report.

1.3.2 Assumptions

In performing this cost analysis, Kimball assumes that all information provided by the ETSB, County and participating PSAPs is correct and current. Kimball also assumes that Winnebago County ETSB wants to move forward with consolidation on an independent timeline to the NINGA project that is currently underway in the ten-county region.

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2. SYNOPIS OF THE ASSESSMENT OF AND RECOMMENDATION FOR THE CONSOLIDATION OF THE WINNEBAGO COUNTY 9-1-1 SYSTEM

In July of 2015, Kimball contracted with the Winnebago County ETSB to examine the communications technology, systems, processes, human resource (HR) issues and related costs of the participating agencies in order to provide an assessment of and recommendation for the consolidation of the Winnebago County 9-1-1 System with the City of Rockford 9-1-1 System.

To examine operations, Kimball collected data using a comprehensive survey, meetings with key stakeholders in the County, and observations of public safety answering point (PSAP) operations at the City of Rockford PSAP and the Winnebago County PSAP. An assessment of the current PSAP conditions was performed to determine how each of the PSAPs operate and how leadership works with staff and how staff works with each other, as well as what kind of facilities and technologies exist at each PSAP. Kimball also utilized the information collected for the consolidation report along with additional data collected to perform this cost analysis.

Based on the data collected and Kimball's analysis of that data, Kimball recommended three options for consolidation for Winnebago County. These recommended options are outlined below:

- Option One: Fully consolidate under the City of Rockford with the Winnebago County 9-1-1 facility as back-up
- Option Two: Consolidate both Winnebago County and the City of Rockford keeping the 9-1-1 operations for all the participating agencies within the City of Rockford Fire Administrative Services location and identify another PSAP as the backup operations
- Option Three: Consolidate the City of Rockford and Winnebago County within the Winnebago County 9-1-1 facility, keeping fire dispatch in the City PSAP and migrating all other dispatch and services to the Winnebago County facility

Along with the above options, the consolidation report also details governance and operational factors that Winnebago County should consider when determining a consolidation strategy.

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3. COST ANALYSIS

The cost of consolidation has several components including those associated with an operating budget, transition costs and one-time capital costs. These components are detailed below.

3.1 Current PSAP Operating Budget

The Winnebago County ETSB facilitates the procurement of the County and City of Rockford 9-1-1 telephone systems, equipment and networks. The operational costs include equipment, network costs, ancillary systems and personnel costs, all of which are required in the provision of call processing and dispatch services in the respective response areas. The ETSB and the two PSAPs recognize that some duplicate costs are expended countywide for facilities, networks, and operations.

The inherent problem recognized in the overall process of emergency call handling is the cost to maintain operations, now and in the future. Each autonomous public safety entity financially supports some of its own communications needs creating duplicated costs for the same purposes as the other agency. This unnecessary autonomy has been recognized by the Winnebago County ETSB as a roadblock to:

- Service efficiencies and improvements
- Uniformity of service across all agencies for all citizens, visitors, and public safety responders in Winnebago County
- Technology advancements
- Funding opportunities
- Regional, state, and federal partnering opportunities

In determining the current operating budget, the Kimball team utilized the accounts receivable (AR) reports filed with the State of Illinois. Due to the methodology used in filling out those reports, it was not possible to separate the complete operating budget picture for the two PSAPs. Therefore all the data was used in an overall review of the current operating budget.

The assessed 9-1-1 fees provide the current funding of 9-1-1 and related dispatch services across the county.

- A fee of $0.50 is assessed on all wireline and interconnected VoIP subscribers. In 2014, the ETSB collected a total revenue of $622,331 and for 2015 a total revenue of $582,221 in wireline surcharges.

- Wireless surcharges of $0.73 per subscriber are assessed at the state level. The wireless surcharge collected in 2014 was $1,587,857 and for 2015 a total of $1,580,404

The total revenues collected in 2015 leaves a shortfall of approximately $47,563 from revenue generated in 2014.

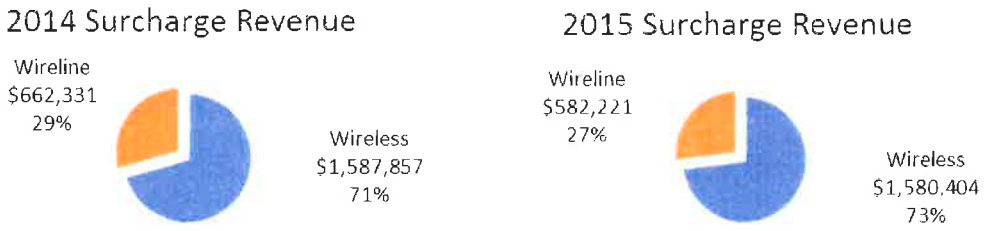

Figure 1 – Surcharge Breakdown

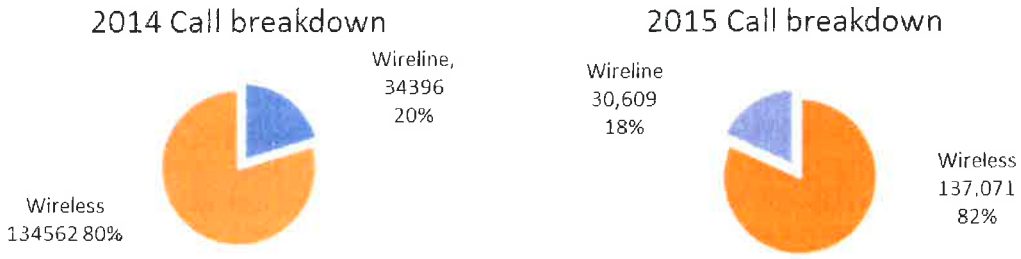

Figure 2 – Call Breakdown

The following table denotes 2014 and 2015 actual amounts for 9-1-1 revenue and operational expenses, as provided by the AR reports, in categories including administrative phones, CAD and RMS, radio, facilities, furniture, uniforms, training, and support staff.

Table 1 – Revenue and Costs

YEAR	REVENUE	COSTS
2014	$2,210,188	$1,987,183
2015	$2,162,625	$2,157,708
Two Year Average	$2,186,406	$2,072,445

The two agencies within Winnebago County are maintaining more systems, circuits, equipment, and personnel than will be required under a fully consolidated environment. There are numerous duplicated ancillary systems, equipment, and networking in place at and in support of each agency. As noted above, the total current operational costs for both agencies in Winnebago County is averaged at $2,072,445. There is approximately an 8% increase in cost between 2014 and 2015 while revenue was reduced by 2.2 percent. A 10.2 percent reduction in costs will be required to match operating expenses with revenues.

Kimball cautions decision-makers not to directly compare the current cost to operate the two centers to future consolidated PSAP costs. The best way to consider the differences between current costs and consolidated PSAP costs is as an apples-to-oranges comparison. Differing operations in the current facilities, systems and service levels are not comparable to that of a well-planned, professionally implemented and managed consolidated operation.

3.2 One-time Consolidation Costs

Participating agencies can expect to encounter certain one-time costs during a consolidation process. Some of these costs can be determined in advance while some cannot be estimated with any specific accuracy until the planning and implementation phases occur. Examples of one-time costs include personnel costs associated with transitioning to the new consolidated PSAP environment and training on new systems, facility renovation/upgrade costs and any costs for professional services such as architects and/or public safety consultants.

3.2.1 Transition Related Personnel Costs

Personnel costs during the transition process will increase. There is the cost to the participating agencies to maintain existing operations and staff during training and transition activities associated with the consolidated center. There is also the cost to train the existing staff on the new systems, equipment, protocols and other policies and procedures so that they are able to migrate successfully to the new operation. These costs will be determined by the choices made during the planning and implementation phases and as the required level of training is more clearly identified.

Costs for the management, support, administrative and operations staff during the transition planning period will depend on the positions deemed necessary to the operation of a consolidated communications center. Other factors that affect cost include when each staff member is hired, which entity will bear those costs, and what the pay and classification will be. The cost of hiring existing staff into the new operation will also depend on existing pay and classification, seniority, position to be hired into, and if/where adjustments are needed to create the parity in pay necessary to bring all staff to a fair and equitable level. Benefits usually prove to be the most difficult aspect of this effort. In order to not create roadblocks in the transition process, difficult decisions may be necessary to 'grandfather' some benefits and/or retire some benefits through natural attrition.

Through this process, some staff may be able to remain at a pay and benefit level that differs from the majority of the staff for the remainder of their career or some pre-determined time period. This is sometimes necessary when an employee has considerable time in, may be close to retirement, or would suffer loss that cannot be reasonably compensated from changes in benefits.

The consolidation process will require one-time expenditures as well. The best example of this type of expense would be the renovation of either the primary or back-up facilities to assure they can provide the level of service required for their specific operation.

3.2.2 Facility Costs

The costs associated with renovating a facility is another example of an initial capital expense. The Winnebago County 9-1-1 facility is planned to function as the primary PSAP while the Rockford 9-1-1 facility will function as a back-up PSAP. Both centers have sufficient floor space for the required number of operator workstations,

management and support staff and data/equipment rooms for both locations. Sufficient emergency, back-up power, HVAC, access control and security will be needed at each center.

3.2.3 Professional Services

To assist and support the planning, transition and implementation of consolidation, temporary professional services may need to be engaged that have experience conducting multiple consolidation planning and transition projects. Professional services will provide appropriate coordination of resources, planning documents and timelines, and necessary coordination between all stakeholders, vendors, contractors, and user agencies. Planning costs are determined by the level of support needed and calculated in hours of effort and time on-site. These costs will be dependent upon the level of support needed during the transition and implementation.

3.3 Technology Costs

Capital costs include the technology that feeds the user agencies the data they require to operate effectively. Some technology costs can be very difficult to estimate in the preliminary phases of consolidation long before the final operational decisions are made. There will be a variety of decision options for each critical system that may increase or decrease the total cost as the PSAP goes through the procurement process for each of the systems. However, as a starting point, Kimball examined the systems currently in use to determine what systems could be reused, expanded and which need total replacement.

3.3.1 PSAPs

The Winnebago County ETSB has determined that the Winnebago County 9-1-1 Center located at 4511 N Main Street, Rockford will be the primary PSAP. The Rockford 9-1-1 Center located at 204 S 1st St, Rockford, will be the back-up PSAP. As required by state regulation, the back-up PSAP will operate as an independently manned center 24 hours per day, seven days per week.

It is anticipated that the County center will be the primary dispatch center for police operations and the City dispatch center will be the primary dispatch for fire dispatch. However, each of the centers will be fully functional, have the ability to back each other up and have the ability to dispatch all disciplines. Both centers will also be available for overflow operations during periods of extremely high call volume.

3.3.2 PSAP Workstations

The number of workstations in the PSAP is used to estimate the technology costs for that specific dispatch center. In addition to the number of positions, the other significant factor in estimating the technology costs is the type of critical technology that must be installed at each of the workstations; e.g. CAD, 9-1-1 answering equipment and radio dispatch consoles.

It is expected that typical staffing at the County center will be one supervisor, six police dispatchers and depending on the time of day, anywhere from two to five call takers. Typical staffing at the City center will be two fire dispatchers.

For typical operations, all 9-1-1 calls will be answered and processed at the County center. Police calls will be answered, processed and dispatched at this center. Fire calls will be answered and entered in the CAD system at the primary center and then transferred via CAD to the fire dispatchers staffed at the back-up center.

3.4 Estimated Personnel Costs

The estimated operating budget for a consolidated center includes personnel, annual maintenance for technology, and other administrative costs. *Personnel cost estimates should be considered as rough estimates only. Actual personnel costs cannot be estimated until pay scales and benefits are decided upon in future implementation planning processes.*

The following table estimates personnel costs for a consolidated PSAP. When developing these costs the following assumptions were used:

- Benefit costs were provided by the City payroll department for the Division Administrator, Training Supervisor, Technical Services Coordinator, MSAG Technician and the Secretary.
- Pay rates for supervisors and telecommunicators are based on averages used in the 2015 consolidation report. Benefit costs were calculated using the average percentage rate of the other positions with is 41 percent.

Table 2 – Consolidated PSAP Personnel Costs Estimate

Consolidated PSAP Personnel Cost Estimate					
Position Title	Number of Employees	Estimated Base Pay Per Position	Estimated Total Base Pay	Benefits	Total
Division Administrator	1	$101,069	$101,069	$34,701	$135,770
Shift Supervisors	4	$67,704	$270,816	$111,035	$381,851
Telecommunicators	69	$52,416	$3,616,704	$1,482,849	$5,099,553
Training Supervisor	1	$82,547	$82,547	$23,952	$106,498
Technical Services Coordinator	1	$77,092	$77,092	$36,343	$113,436
MSAG Technician	1	$57,760	$57,760	$32,329	$90,089
Secretary	1	$47,592	$47,592	$22,909	$70,501
Total Staff Needed	**78**				**$5,997,697**

Currently 50 percent of both PSAP manager positions are funded through the 9-1-1 surcharge. Within the consolidated environment, there only needs to be one PSAP Manager so that position should be full funded by the surcharge. The surcharge would also continue to fund half of the training supervisor position, half of the technical services position and all of the MSAG technician position. The MSAG technician position will change as Winnebago County moves forward with NG9-1-1. This position may have other responsibilities as the new system will transition away from using the MSAG but will still have GIS technical needs.

3.5 PSAP Workstation Recommendations

Based on current operations Kimball estimates the need for 14 workstation positions in the primary center and nine positions in the back-up PSAP. The position types and required technology for each workstation is depicted in the following two tables:

Table 3 – Primary PSAP Workstations

Primary PSAP - Workstations				
#	Position Type	9-1-1 CPE	CAD	Radio Dispatch Console
1	Call Taker 1	Yes	Yes	No
2	Call Taker 2	Yes	Yes	No
3	Call Taker 3	Yes	Yes	No
4	Call Taker 4	Yes	Yes	No
5	Call Taker 5	Yes	Yes	No
6	Control 1 Police	Yes	Yes	Yes
7	Control 2 Police	Yes	Yes	Yes
8	Control 5 Police	Yes	Yes	Yes
9	Tac 1 Police	Yes	Yes	Yes
10	Tac 2 Police	Yes	Yes	Yes
11	Tac 3 Police	Yes	Yes	Yes
12	Supervisor	Yes	Yes	Yes
13	Overflow/Back-up 1	Yes	Yes	Yes
14	Overflow/Back-up 1	Yes	Yes	Yes

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Table 4 – Back-up PSAP Workstations Error! Not a valid link.

Back-up PSAP - Workstations				
#	Position Type	9-1-1 CPE	CAD	Radio Dispatch Console
1	RFD Main Fire	Yes	Yes	Yes
2	Suburban Fire	Yes	Yes	Yes
3	Call Taker 1	Yes	Yes	No
4	Call Taker 2	Yes	Yes	No
5	Call Taker 3	Yes	Yes	No
6	Call Taker 4	Yes	Yes	No
7	Overflow/Back-up 1	Yes	Yes	Yes
8	Overflow/Back-up 2	Yes	Yes	Yes
9	Overflow/Back-up 3	Yes	Yes	Yes

3.5.1 Computer Aided Dispatch

Currently, both PSAPs are utilizing the same CAD system, Motorola Premier CAD 7.0. The system was originally installed in 2005 and was last updated in 2012. The system includes Motorola Advanced Tactical Mapping (ATM) solution, mobile data integration and a primary/back-up server configuration. The primary servers are installed at the Winnebago County 9-1-1 center and the back-up servers are installed at the Rockford 9-1-1 Center. Connectivity between the servers is iFiber and the back-up connectivity is microwave.

There are a number of required interfaces installed within the current system:

- E9-1-1
- NetClock
- Open Query
- MDC to Alerts
- Fire Records Management System
- Fire Station Alerting
- Fire Station Toning – Zetron 26
- NetRMS
- Fax & Run

The Motorola Premier CAD system has reached its end of life and must be replaced.

The Winnebago County ETSB has issued a Request for Qualifications (RFQ) to award a contract to a qualified and responsive consultant for the acquisition of various public safety technology projects including (but not limited to) a new Computer Aided Dispatch (CAD) System, to include a 9-1-1 and Fire Records Management System (RMS), a 9-1-1 and Fire Automatic Vehicle Location (AVL) System, and additional integration and/or management interfaces to these systems and other public safety systems.

3.6 CAD Recommendations

The Motorola Premier CAD system has reached its end of life and must be replaced.

The County should continue their path toward procuring a new CAD, mobile data, AVL and records management system. Typically, during this process, one of the first steps is to complete a thorough needs assessment to determine the functionality and features needed by all agencies that are dispatched by the consolidated center. This needs and functionality assessment will need to be conducted whether the ETSB decides to procure a brand-new system or if they decide to upgrade their existing system.

The ETSB needs to assure they have accurate GIS mapping data available as the newer CAD systems are extremely dependent on accurate and robust mapping data.

Sufficient redundancy should exist within the CAD system to assure that no single point of failure exists. To assure the fullest extent of redundancy, the production server(s) should be located at the primary PSAP with a redundant geo-diverse back-up server installed at the back-up PSAP.

The ETSB may want to consider moving toward computer network/hardware virtualization and the new system should be capable of implementing and supporting a virtual environment.

The CAD system should be designed to take advantage of current fail-over and other back-up technologies that enable continued operation, notwithstanding single or multiple component failure.

For optimum capability, functionality and integration, the mobile data system should be a fully integrated solution with the selected CAD.

The new CAD system should be ready and capable to handle NG9-1-1 functionality.

Some other typical interfaces found within public safety communications CAD systems that the ETSB may want to consider are dispatcher protocol software, hand-held devices (tablets, smart phones), text messaging/notifications and WebCAD.

3.7 9-1-1 Answering Equipment

Both PSAPs currently have Positron Lifeline 100 9-1-1 answering positions that were originally installed in 2006. This telephone CPE has reached its end of life and must be replaced.

Winnebago County is one of ten ETSBs that are participating in a unified planning effort to migrate enhanced 9-1-1 (E9-1-1) capability to NG9-1-1 through the NINGA project. NINGA has solicited proposals, through a Request for Proposal (RFP) process, from qualified entities (the Proposers) for the purpose of hiring a Systems Integrator to design, purchase and implement a complete new turn-key NG9-1-1 system.

3.7.1 9-1-1 Answering Equipment Recommendations

The consolidation should continue their participation in the NINGA project.

3.8 Radio Dispatch Consoles

Both the Rockford and Winnebago County 9-1-1 Centers utilize Motorola Gold Elite consoles. There are also five Motorola MCC7500 radio consoles installed at the Rockford 9-1-1 Center. The MCC7500 consoles were needed for connectivity to STARCOM21 radio system utilized by the City of Rockford Police Department.

3.8.1 Radio Dispatch Console Recommendations

The Motorola Gold Elite consoles have reached their end of life and should be replaced with Motorola MCC7500 radio consoles.

It has been our experience, that one of the most difficult tasks in a consolidation project is the integration of radio consoles and radio systems. This is typically precipitated by the need for connectivity to numerous remote sites, base stations and antennas through a large geographic area. The need to provide radio communications on all primary channels from both centers so that each can provide back-up communications for the other makes this task more difficult. The more radio channels that need to be connected, the more complex this task becomes. Both centers will need:

- The capability to monitor and communicate on all primary dispatch channels and talk groups for all disciplines. In situations when it is necessary to operate out of the back-up center, some will need to consolidate on channels or talk groups
- The ability to access and activate fire station alerting and toning
- Alarm monitoring
- Tornado sirens

Within the back-up scenario, there may be an opportunity to save money on connectivity costs by using 'over-the-air' connectivity to base stations versus dedicated lines. This is only recommended for short-term back-up communications and is a local decision that could be considered.

Kimball recommends the County and emergency response agencies continue to build out and utilize the STARCOM21 trunked radio system to the fullest extent possible.

3.9 Logging Recorder

The Rockford 9-1-1 Center is currently utilizing two logging recorders. They have a 64 channel NICE Inform logging recorder that was installed in 2006. They also have a NICE IP recorder that is capable of recording 20 simultaneous calls and was installed with the MCC7500 radio project and is used to record the STARCOM21 talk groups. Inform Lite software has been installed and allows the search and playback functionality for both recorders and has the ability to handle a total of 120 resources (channels and simultaneous recordings). Both the Inform and IP recorders can be accessed via the Inform Lite software.

The Winnebago County center is currently utilizing a 72 channel NICE Inform logging recorder.

3.9.1 Logging Recorder Recommendations

The original analog and digital recorders that were installed in 2006 should be replaced to record any analog or digital recordings. The current NICE IP logger provided to record the new radio consoles can be expanded to

accommodate additional new radio consoles along with the recording of any conventional channels. The NINGA project includes an IP recorder to provide a solution for recording that new technology.

3.10 Master Clock

Both centers utilize Spectracom master clock solutions for all the critical technology installed including CAD, 9-1-1 answering equipment, radio consoles and logging recorder.

3.10.1 Master Clock Recommendations

A new fully redundant master clock solution that provides synchronized time and geographic diversity should be implemented.

3.11 Cost Estimates

The following table provides budgetary costs for new technology that will be needed to support both the primary and the back-up PSAPs. These costs are based on a total of 23 positions between the two centers.

Table 5 – Required Technology Cost Estimates

REPLACEMENT OR UPGRADE COSTS			
TECHNOLOGY SYSTEMS AND SPECIALIZED FURNITURE	POSITIONS	COST PER POSITION	TOTAL ESTIMATED COST
CAD/Mapping/Interfaces	23	$125,000.00	$2,875,000.00
911 CPE Phone Replacement	23	$106,759.69	$2,455,472.80
Radio Consoles	9	$95,000.00	$855,000.00
Radio Network Connectivity	~	$20,000.00	$20,000.00
Digital Logging Recorder	~	$64,000.00	$64,000.00
Redundant Master Clock Solution	~	$20,000.00	$20,000.00
Door, Camera & Security Updgrades	~	$10,000.00	$10,000.00
Migration/Transition Costs	~	$25,000.00	$25,000.00
		TOTAL	$6,324,472.80

The following assumptions were used in calculating the above budgetary estimates:

- CAD includes interfaces to mobile data but does not include agency software, hardware or connectivity for mobile.
- CAD includes interfaces to Law Enforcement Records Management System (LERMS) and Fire Records Management System (FRMS) but does not include the RMS base application costs, any modules or any agency client RMS software or hardware.
- CAD does include pricing for standard interfaces but not for any required custom interfaces.
- CAD pricing does not include any pricing for data conversion.
- CAD pricing does include software licenses for management and support positions.
- 9-1-1 CPE is the five year cost to the County for the NINGA project.
- 9-1-1 CPE costs are based on all current participants continuing their participation in the NINGA project

- Radio connectivity would be leased telephone circuits.
- Existing IP logging recorder for radio will be expanded to include other new radio console positions.
- A new IP logging recorder will be provided for the NINGA project.
- A new logging recorder will be needed for legacy telephone and radio.
- Some minor security upgrades will be needed for the County center/equipment rooms such as cameras and access control.

There are no hard or fast rules that apply to a consolidation project when it comes to who is the responsible party, either the agency(s) or the communications center, for a technology cost or a portion of the cost. This includes not only the purchase of new equipment but also upgrades, recurring connectivity costs, annual support or software or hardware installed in the field. There are stipulations as to how or what the 9-1-1 surcharge can be used for and anything pertaining to radio outside the 9-1-1 Center is not eligible.

Funding decisions must be made locally and depend on a number of factors, such as, but not limited to, the technology involved, project participants, local politics and available funding. Other factors, including whether the cost is eligible to be paid for using collected local fees and/or grants or an effort to entice an agency, agencies or a discipline to participate in the consolidation project by providing them additional technology and functionality.

Vendor provided support and maintenance agreements are recommended for all critical technology systems. These agreements not only provide for a timely response to system issues, problems or errors, but they also provide for routinely scheduled and non-scheduled software updates. These updates include system fixes, patches and software version updates. Most updates include additional functionality that would be useful to both the communications center and the user agencies.

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Table 6 –Annual Support & Maintenance Estimates

ANNUAL SUPPORT & MAINTENANCE		
TECHNOLOGY SYSTEMS AND SPECIALIZED FURNITURE	Purchase Price	Estimated Annual Maintenance
CAD/Mapping/Interfaces	$2,875,000.00	$431,250.00
911 CPE Phone Replacement	$2,455,472.80	~
Radio Consoles	$855,000.00	$85,500.00
Radio Network Connectivity	$20,000.00	~
Digital Logging Recorder	$64,000.00	$9,600.00
Redundant Master Clock Solution	$20,000.00	~
Door, Camera & Security Updgrades	$10,000.00	~
	TOTAL	$526,350.00

The following assumptions were used in calculating the above budgetary support and maintenance estimates:

- Maintenance was calculated based on Kimball's experience with similar recent projects. This is the estimated annual cost for vendor provided support and maintenance.
- All systems should provide a one year warranty period.
- System support and maintenance should begin after the warranty period.
- Support and maintenance for the 9-1-1 CPE project is included in the system cost.

3.12 Maximizing Utilization of Existing Technology Resources

In any newly consolidated communications center, the optimum configuration would be to procure entirely new technology optimized for the consolidated operation. Costs to do so are often far beyond the resources of the involved agencies. Absent the ability to deploy entirely new technology optimized for the consolidated operation, decisions must be made about which technology can be re-used and which must be replaced. This is both a fiscal and an operational decision. An item of technology might be fiscally feasible to be re-used, but its capabilities may not sufficiently meet the needs of the collective or individual agencies.

With the technology currently in use at both Centers there are limited opportunities where re-use of equipment is even an option. Many of the major systems have or will be reaching their end of life cycle in the near future. There are the new radio console positions and logging recorders that can be retained and/or expanded but much of the other technology will not be able to be re-used and should be replaced.

By making prudent re-use of appropriate technology, some technology cost savings can be achieved, but within this project, not many.

3.13 Estimated Consolidated Operating Budget

A common misconception is that consolidating emergency communications will immediately save money for the participating entities. This is not entirely true. Kimball has found that there are cost efficiencies that will eventually lead to cost savings. This evolution typically occurs within three to five years, depending on the physical and operational state of the original agencies. If renovating a facility is required, then those capital costs will elevate

consolidation costs during the initial planning and implementation phases. Often there is a need to create parity in pay and benefits for participating agency staff that are expected to become the skilled staff of the consolidated operation.

The value of lives saved by improved services through operational efficiencies cannot be enumerated. Personnel, training and support, systems and equipment, space needs and facilities maintenance and upkeep are the areas where the majority of savings can be realized through consolidating operations. Long term cost savings, operational efficiencies and standardized service will reduce operational costs in areas of employee retention and training.

Even with the elevation of transitional costs to the participants, the cost efficiencies derived from streamlining operations, technology (systems and networks) and facilities to one primary and one backup operation become reality as soon as the transition is complete. First time capital costs, such as renovating a facility, replacing the systems and creating a redundant robust network, and merging personnel under one administration, are temporary. The on-going operational costs of the consolidated PSAP typically and collectively create an overall cost savings.

After reviewing all the data provided, it was clear that it will be unreasonable to expect a large cost savings from an operational perspective. Other than affected personnel counts, there may be a reduction of radio console positions that could provide a cost savings. Depending on the final organizational structure there could be some savings on the network costs.

What can be measured is the overall cost savings to the ETSB. Winnebago County ETSB should expect at least a 10 percent savings in operational costs annually. Based on the current operational average cost of $2,072,445, it could be considered to have an annual savings of approximately $200,000. Actual savings will most likely be greater than 10 percent overall due to many unforeseen costs that would need to be addressed by the final configuration of the remaining county/city system.

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ACRONYMS

Acronym	Definition
ACN	Automatic Crash Notification
ALI	Automatic Location Identification
ANI	Automatic Number Identification
ANSI	American National Standards Institute
APCO	Association of Public-Safety Communications Officials
API	Application Programming Interface
AQS	ALI Query Server
AVL	Automatic Vehicle Location
CACC	Cambridge Central Ambulance Communications Centre
CAD	Computer Aided Dispatch
CE	Customer Edge
CALEA	Commission on Accreditation for Law Enforcement Agencies
CEMP	Comprehensive Emergency Management Plan
CLEC	Competitive Local Exchange Carrier
CPE	Customer Premise Equipment
CPIC	Canadian Police Information Centre
CPR	Cardiopulmonary Resuscitation
CTI	Computer Telephony Integration
DHHSI	Deaf, Hard of Hearing and Speech Impaired
DHS	U.S. Department of Homeland Security
E9-1-1	Enhanced 9-1-1
EMD	Emergency Medical Dispatch
EMS	Emergency Medical Services
EMS-TIF	Emergency Medical Services - Technology Interoperability Framework
EOC	Emergency Operations Center
ESINet	Emergency Service IP Network
EVOC	Emergency Vehicle Operator Course
FCC	Federal Communications Commission (U.S.)
FMTI	Fire Monitoring Technologies, International
FRMS	Fire Records Management System
GIS	Graphic Information System
HSPA	High Speed Packet Access
HVAC	Heating, Ventilation and Air Conditioning

IAFC	International Association of Fire Chiefs
ICMA	International City/County Management Association
ICON	Integrated Court Offences Network
ICLU	In-call Location Update
ICS	Incident Command System
ILEC	Incumbent Local Exchange Carrier
IP	Internet Protocol
IRR	Instant Recall Recorder
LAN	Local Area Network
LDT	Line Digital Trunk
LERMS	Law Enforcement Records Management System
MCM	Major Case Management
MDC	Medical Doctor
MDC	Mobile Data Computer
MIS	Management Information System
MOHLTC	Ministry of Health and Long Term Care
MTO	Ministry Transportation Office
NCIC	National Crime Information Center (U.S.)
NENA	National Emergency Number Association (U.S. and Canada)
NFPA	National Fire Protection Association (U.S.)
NG9-1-1	Next Generation 9-1-1
NIMS	National Incident Management System (U.S.)
NIOSH	National Institute for Occupational Safety and Health (U.S.)
NPGP	National Preparedness Grant Program
OCPC	Ontario Civilian Police Commission
PC	Personal Computer
PERS	Public Emergency Reporting Service
POTS	Plain Old Telephone Service
PRIDE	Police Regionalized Information Data Entry
PSO	Public Safety Officer (trained to perform both law enforcement and fire duties)
QA/QC	Quality Assurance and Quality Control
RETAINS	Responsive Effort to Address Integral Needs in Staffing
RMS	Records Management System
RN	Registered Nurse
RPN	Registered Practical Nurse
SIP	Special Interest Police

SOR	Sexual Offender Registry
TCP/IP	Transmission Control Protocol / Internet Protocol
TDD / TTY	Telecommunications Device for the Deaf / Teletypewriter
TIF	Technology Interoperability Framework
UHF	Ultra-high Frequency
UPS	Universal Power Supply
VHF	Very-high Frequency
VPN	Virtual Private Network
XML	Extensible Markup Language