



# GET CONNECTED

AN ANALYSIS OF PUBLIC SAFETY 911 CALL  
TAKING, DISPATCH, AND COMMAND CENTER  
SERVICES IN MILWAUKEE COUNTY



PUBLIC POLICY FORUM

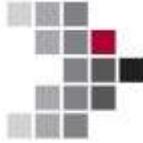
## **ABOUT THE PUBLIC POLICY FORUM**

Milwaukee-based Public Policy Forum – which was established in 1913 as a local government watchdog – is a nonpartisan, nonprofit organization dedicated to enhancing the effectiveness of government and the development of southeastern Wisconsin through objective research of regional public policy issues.

## **PREFACE AND ACKNOWLEDGMENTS**

This report was commissioned and funded by the Milwaukee County Office of Emergency Management (OEM) for the purpose of providing independent, third-party analysis of possibilities for consolidating County (and possibly municipal) emergency communications and dispatch functions in a new OEM Command Center facility. The Forum subcontracted with Winbourne Consulting, LLC – a nationally-recognized public safety communications consultant – to handle the technical side of the analysis. A lengthier technical report was authored by Winbourne Consulting and is available on the Forum's website. This Report Brief provides a high-level summary of key findings and recommendations.

Report authors would like to thank the director and staff from OEM and other Milwaukee County departments (including General Mitchell International Airport, Milwaukee County Transit System, and Highway Division, and Milwaukee County Land Information Office) for providing information during the study process and patiently answering our questions. We also would like to thank administrative, budget, and public safety officials from the City of Wauwatosa for their extensive assistance in the preparation of our municipal dispatch consolidation case study analysis. Finally, we would like to thank the members of the Study Advisory Committee – who are listed in the Winbourne report – for all of their assistance and guidance during the study process.



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*An Analysis of Public Safety 911 Call Taking, Dispatch,  
and Command Center Services in Milwaukee County*

July 2016

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*Report Brief based on technical report and analysis conducted by Winbourne Consulting*

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## INTRODUCTION

In January 2015, Milwaukee County merged four of its public safety functions into a new Office of Emergency Management (OEM). The consolidation of those functions -- Emergency Management, Emergency Medical Services, 911 Communications, and Radio Services -- not only was designed to improve emergency response efficiency and accountability *within* Milwaukee County government, but also was seen as an opportunity to explore how the County and its municipalities might work together to improve emergency response capabilities across *all levels* of government in the county.

A critical component of OEM is its Public Safety Answering Point (PSAP). This PSAP is responsible for handling cellular 911 calls that originate in about half of the county's 19 municipalities (exceptions are the Cities of Milwaukee, Franklin, and the seven North Shore municipalities), and cellular calls surrounding expressways and county trunk highways. OEM's PSAP -- which is part of a larger OEM Communication Center that recently became the home of the Emergency Medical Services Communications Center -- also provides dispatch services for the Office of the Sheriff, House of Correction, District Attorney's investigators, and the Medical Examiner.

The operational merger of public safety functions has led OEM to begin planning for creation of a new County Command Center. The new center would house OEM's various dispatch and emergency communications services and serve as a secure environment that could provide for daily collaboration between public safety functions. Another key function of the unified command center would be to coordinate emergency response during a crisis.

This idea also prompted consideration of including dispatching functions from other County departments in the new center, such as the Highway Division and transit system. At the same time, given that several of the municipalities in the county operate individual PSAPs, County leaders saw this as an opportunity to explore the creation of a new, larger PSAP that also might be an attractive option for municipalities looking to shed their individual dispatching responsibilities.

The notion of consolidating dispatch services is not new to Milwaukee County municipalities. The seven North Shore communities consolidated their PSAPs in Bayside in 2011, while the South Shore communities of Cudahy, St. Francis, and South Milwaukee commissioned a study of a possible consolidated dispatch center-- performed by the Public Policy Forum -- in 2012. While that consolidation did not take place, St. Francis recently eliminated its dispatch center and now purchases dispatch services from Oak Creek.

In the summer of 2015, OEM commissioned a study by the Public Policy Forum to determine how best to consolidate County emergency communications and dispatch functions in a new Command Center facility, while also exploring the feasibility of furthering the consolidation of municipal PSAPs. The Forum subcontracted with Winbourne Consulting, LLC -- a nationally-recognized public safety communications consultant -- to handle the technical side of the analysis, while the Forum managed the project and provided fiscal and operational guidance and analysis.

The full report describing project findings and recommendations was released in June 2016 and is available on the Forum's website. In this Report Brief, we provide an overview of those findings, as well as a summary of a "case study" that analyzes a hypothetical approach to merging the City of Wauwatosa's PSAP into Milwaukee County's OEM PSAP. That case study is intended to shed light on the potential for further dispatch consolidation in Milwaukee County.



# CONSOLIDATING MILWAUKEE COUNTY DISPATCH FUNCTIONS

The project's first step was to consider the extent to which various Milwaukee County dispatching and emergency communications functions should be consolidated within a new OEM Command Center facility. With the merging of the County's Emergency Medical Services Communications Center (EMS Com) into OEM's Communication Center already underway, we turned our attention to airport, transit, and highway dispatching and communications. ***In each case, we found that while full-scale consolidation is not immediately practical or necessary, initiatives should be pursued to improve coordination and data sharing between these functions and OEM.***

**General Mitchell International Airport** – After evaluating airport-based emergency communications and response systems, we recommend a substantial upgrade to the Airport Fire Station alerting system. We also suggest that the new system be integrated with the OEM Communication Center (through technology, as opposed to co-location), as well as with the Air Traffic Control Tower and the Airport Operations Center. We estimate these recommendations can be achieved at an estimated cost of \$235,000-\$320,000.

**Milwaukee County Transit System (MCTS)** – We found that MCTS lacks a back-up communications center, which is a risk issue that should be addressed in the near-term. We recommend that MCTS and OEM immediately establish a back-up facility in the existing OEM Communication Center, and that OEM adjust its space planning to accommodate a permanent back-up in its new facility (assuming that one is built). This collaborative solution not only would address MCTS' risk issue, but also would benefit OEM by giving it continual access to bus location data; and it would provide OEM leaders with the ability to use the transit dispatch system during a mass casualty incident to organize the transport of victims and public safety personnel. Again, our analysis determined that co-location of the primary Transit Operations Center within the OEM facility was not necessary or desirable. Implementing our recommendation would cost an estimated \$150,000-\$210,000.

**Milwaukee County Highway Division** – The Highway Division has implemented GPS tracking devices on some of its vehicles, with vehicle location data made available via a website. We recommend immediately making the website available to the OEM Communication Center and the Emergency Operations Center, which would give both entities the ability to see road status during snow storms and other emergencies. In addition, the GPS data from all Highway Division vehicles ultimately should be integrated into the OEM Communication Center for viewing as a layer on the Computer-Aided Dispatch (CAD) map. We also recommend expanding the use of GPS technology to all remaining Highway Division vehicles, and we suggest that adding the Division's dispatching operation into the new County OEM facility should be considered as plans for the new facility progress. The up-front cost of these initiatives (not including possible consolidation into the OEM facility) would be about \$25,000, and there would be an ongoing cost of about \$1,500 per month for the additional GPS devices.

**Table 1** summarizes our recommendations with regard to internal consolidation of Milwaukee County emergency communications and dispatching.



**Table 1: Summary of Internal County Emergency Communications Recommendations**

<b>Function</b>	<b>Recommendation</b>	<b>Estimated Cost</b>
General Mitchell International Airport	Don't physically consolidate, but upgrade Airport Fire Station alerting system and integrate with OEM Communication Center	\$235,000-\$320,000
Milwaukee County Transit System	Don't physically consolidate, but establish back-up Transit Operations Center at OEM Command Center	\$150,000-\$210,000
Highway Division	Consider physical co-location of highway dispatching; in the meantime, upgrade GPS capability and share data with OEM Communication Center	\$25,000 for immediate upgrades; ongoing cost of \$1,500/month



## MUNICIPAL PSAPs: ENHANCED DATA SHARING AND INTEGRATION

While PSAP consolidation already has occurred in Oak Creek and Bayside, there did not appear to be widespread interest among other municipal PSAPs in the county to pursue further consolidation with either of these centers or the OEM Communication Center in the near future (though Wauwatosa agreed to participate in a modeling exercise, which is described below). Yet, despite the lack of interest at this time, we believe that the need for technological upgrades could make consolidation more attractive to several municipal PSAPs in the not-too-distant future.

***In addition, we found interest in developing a more integrated approach to sharing data and improving dispatch capabilities among all the PSAP stakeholders.*** Consequently, we recommend immediate pursuit of several integration initiatives as a possible precursor to eventual larger-scale PSAP consolidation. These initiatives would be in alignment with ongoing public safety initiatives coordinated by the County, including a new emergency communications radio system (known as the P.25 system).

### CAD-TO-CAD INTEGRATION

We recommend the implementation of a countywide CAD-to-CAD solution that would allow CAD data from individual dispatch centers throughout the county to be shared with all other dispatch centers. The CAD-to-CAD solution would provide OEM and other users the opportunity to view how public safety resources are being utilized (and their availability) countywide, or could be used more narrowly by municipal PSAPs solely to view public safety response activity in neighboring municipalities. The amount and type of data shared across the system would be determined by each participating jurisdiction.

An important potential benefit of this solution would be improved mutual aid capability. Milwaukee County, the City of Milwaukee, and the municipal PSAPs have developed Fire/EMS mutual aid agreements that allow the sharing of resources. Currently, mutual aid requests require the requesting agency to manually contact the supporting mutual aid agency to determine if a fire truck or ambulance is available. This process can be automated using a CAD-to-CAD solution, reducing response time.

The specific CAD-to-CAD technology we recommend would allow each participating agency to see which mutual aid apparatus is available, and potentially allow it to dispatch and track that piece of apparatus as if it was their own. Not only would the mutual aid agency see its apparatus being dispatched by the other agency, but it also would see the incident and all of the units assigned to it.

In the case of large-scale incidents, this level of integration would provide all agencies a view of the situation and how resources are being deployed. Utilizing this information, OEM and participating agencies would be able to cohesively coordinate responses, resources, and evacuation procedures if the incident escalates.

While a precise cost estimate would need to be determined after in-depth analysis and determination of which PSAPs would be involved, we estimate that the total capital cost of implementing this recommendation countywide would be \$990,000. There also would be annual recurring maintenance costs in the \$115,000-\$130,000 range.



## COUNTYWIDE GEOGRAPHIC INFORMATION SYSTEM (GIS) MAP FOR PUBLIC SAFETY

We recommend the implementation of a common countywide map that would be available to all public safety agencies and PSAPs within Milwaukee County to enhance incident location identification. The common GIS-based map would be integrated with the CAD-to-CAD solution. The map would have GIS data for each community that would provide PSAP staff and first responders with critical information to assist in their response to any incident.

In addition to providing each municipal PSAP the ability to dispatch to locations outside of its boundaries with certainty, thus reducing response time, the common map would provide OEM with the following capabilities:

- Ability to share information not only pertaining to law enforcement, fire, and emergency medical resources, but also to buses, snow plows, private ambulances, and other resources that are relevant to emergency response.
- Utilizing a single map in conjunction with the proposed CAD-to-CAD solution provides the infrastructure for a single connection to a multitude of external data sources, including ShotSpotter, electronic fire/burglar alarms, panic buttons, car telematics,<sup>1</sup> smartphone apps, texting, photos, video, social media, etc.
- Prepare the County for implementing a Next Generation 911 system (NG911).<sup>2</sup>

To implement this recommendation, the County, City of Milwaukee, and other municipalities would need to create a regional initiative that integrates the existing street centerlines, building footprints, hydrants, police zones, fire districts, and other public safety map layers into a single format, useable by their CAD systems. The Milwaukee County Land Information Office (MCLIO) has offered to play a central role in that effort. MCLIO is governed by an 11-member Land Information Council that includes representatives from the County, City, Milwaukee Metropolitan Sewerage District, the Intergovernmental Coordinating Council, and others, which makes it particularly well-suited to play a central role in an intergovernmental GIS mapping effort.

Based on discussions with MCLIO, we did not identify any capital cost for the City of Milwaukee or municipalities associated with this initiative, but there would be personnel costs associated with providing the public safety-specific information to MCLIO. Similarly, there would be no capital cost for the County, but personnel costs would be required to upload and maintain the public safety information provided by municipalities.

## EMERGENCY MEDICAL DISPATCH

Milwaukee County's Emergency Medical Services Communications Center – which previously was located at the Milwaukee Regional Medical Center in Wauwatosa and recently moved into the OEM

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<sup>1</sup> Car telematics refers to vehicular telecommunications technology (typically involving GPS) that makes it possible to record and map where a car is, how fast it's travelling, how a car is being driven, crash data, etc.

<sup>2</sup> NG911 is an industry/government initiative to modernize the nationwide 911 public safety emergency communications system in light of the evolution of mobile consumer communications devices and applications. NG911 will expand users' ability to call 911 from a phone and to transmit text, images, video, and data to the 911 PSAP.



Communication Center at the Courthouse Complex – has partnered with the Medical College to implement the use of pre-arrival instructions for cardiac incidents for all PSAPs in Milwaukee County. That solution allows certain potential life-saving procedures to be initiated by the caller before an ambulance arrives.

At this time, however, only three PSAPs are using a formalized Emergency Medical Dispatch (EMD) program: West Allis, Milwaukee, and Oak Creek. In order to bridge the gap, the remaining municipal PSAPs answering 911 emergency medical calls must perform a “live transfer” of the call to a medically trained “secondary PSAP” dispatcher, such as EMS Com.

EMD refers to the formalized system that enhances services provided by PSAP call-takers. For example, dispatchers trained in EMD are able to provide pre-arrival instructions to quickly narrow down the caller's type of medical or trauma situation, so as to better dispatch emergency services, and provide quality instruction to the caller before help arrives. A full EMD program provides an enhanced level of service from basic pre-arrival instructions.

Our recommendation is to upgrade from the current use of pre-arrival instructions solely for cardiac incidents to providing full EMD capability throughout the County. For PSAPs that are not currently using a formal EMD program, we recommend implementation of a certified EMD-capable software product. This action would provide standardized, advanced EMD capabilities throughout Milwaukee County.

To implement this recommendation, software would need to be purchased and installed in each PSAP in the County. The estimated cost would be \$300,000 to \$800,000 for software licenses and \$16,800 to \$57,000 in annual maintenance costs (both would depend on whether only EMS Com, as opposed to some or all municipal PSAP staff, would have software, training, and EMD accreditation).

**Table 2** summarizes our recommendations with regard to enhanced data sharing and integration of emergency communications and dispatching throughout Milwaukee County.

**Table 2: Summary of Countywide Emergency Communications Integration Options**

Integration Opportunity	Recommendation	Estimated Cost
CAD-to-CAD Integration	Implement a technological solution to allow OEM and each municipal PSAP to have access to CAD data from every CAD system in the county	\$990,000 for capital, \$115,000-\$130,000 annually for maintenance
Common GIS Map	Have the Milwaukee County Land Information Office maintain a common GIS map with public safety layers that is integrated into each CAD system	No capital, only personnel hours
Emergency Medical Dispatch	Establish EMD protocol countywide through software installation and enhanced training	\$300,000-\$800,000 for capital, \$16,800-\$57,000 annually for maintenance



## FINANCING AND GOVERNANCE CONSIDERATIONS

The recommendations outlined above would use relatively simple and reasonably priced strategies to substantially enhance emergency communications and protocols within Milwaukee County government, as well as among the County and its 19 municipalities. We also would expect these recommendations to be relatively non-controversial; while possibly serving as a precursor to larger consolidation of municipal PSAPs, their implementation would not imply that such consolidation *must* take place.

Still, determining how to pay for these recommendations and how to govern their implementation would pose challenges. With regard to the internal County improvements, the \$400,000 to \$500,000 capital cost should not be prohibitive, and it is possible that the substantial portion of that cost that would be attributed to General Mitchell International Airport could be charged to the airlines under the Airport's existing cost-sharing framework. However, implementing the estimated \$1.3 to \$1.8 million investment in CAD-to-CAD integration, a common GIS map, and countywide expansion of EMD would require the County and its municipalities to reach agreement on project financing and administration.

Fortunately, a successful governance and financing model currently exists. In 2014, the County and its municipalities reached agreement on a governance structure for the countywide P.25 trunked radio communications system, which is the system used by public safety entities throughout the county to engage in communications via hand-held radios. Upgrades to the radio system were financed by Milwaukee County, while annual usage fees are charged to municipalities to support ongoing operations and maintenance. Hypothetically, a similar cost-sharing arrangement for the improvements recommended in this report – in which the County would pay most or all of the capital costs while municipalities would help support operations – could be considered. A similar financing paradigm also was used to upgrade municipal elections equipment in 2015.

The County and municipal governments have established a "Milwaukee County Radio System Governance Board" to oversee the P. 25 system, which includes representatives from both the County and municipalities who develop annual budgets, make decisions on capital improvements to the system, and address technical standards. Amendments to this agreement could be added to address the initiatives recommended in this report. Such amendments could document the roles and responsibilities of the partner agencies, cost allocation, and ongoing operational maintenance requirements for each partner. If such an approach were taken, then we also would recommend establishing a new subcommittee or subcommittees within the agreement to manage the three proposed projects.



# WAUWATOSA PSAP CONSOLIDATION CASE STUDY

The final component of our analysis involved a case study for PSAP consolidation in Milwaukee County. We modeled a hypothetical scenario under which the City of Wauwatosa would close its PSAP and contract for PSAP services with Milwaukee County. Wauwatosa was selected because of the possibility that the new OEM command center will be located on the Milwaukee County Grounds in Wauwatosa, as well as its possible interest in considering such a scenario.

Over the past 10 years, many communities in Milwaukee County, southeast Wisconsin, and throughout the country have evaluated options for consolidating PSAPs. This trend is likely to accelerate in light of the anticipated full implementation of Next Generation 911 technology, which will require PSAPs to upgrade facilities, purchase new hardware and software, and provide enhanced training for dispatchers (in the case of Wauwatosa, some upgrades already have been initiated). The costs associated with those activities may be prohibitive for some local governments, and particularly for those who administer small dispatch operations.

## WAUWATOSA'S CURRENT PSAP

The Wauwatosa PSAP receives wireless 911 calls that emanate from Wauwatosa and are transferred from the OEM Communication Center, as well as wireline 911 calls directly from the local telephone company. The PSAP also fields public safety-related non-emergency calls and police administrative calls that come into the PSAP from regular 10-digit numbers. The PSAP operation has three combined call-taking and dispatching workstation consoles for operations. It dispatches for fire, police, and emergency medical services.

**Table 3** illustrates the total incoming and outgoing call volume over the past three years, while **Table 4** shows annual numbers of dispatch incidents for each of the three types of emergency services.

**Table 3: Wauwatosa PSAP Annual Call Volume, 2013-2015**

Annual Call Volume	2013	2014	2015
911 Emergency Calls	4,685	4,589	4,568
Non-Emergency Calls (2015 only)			19,830
Police Admin (non-emergency, non-911; 2015 only)			46,320
All Incoming Calls			72,733
Outgoing calls (2015 only)			20,742

**Notes:**

- New Cassidian/Airbus 911 CPE was installed June 2015.
- 2015 non-emergency and all call totals are based upon projection from call information captured by 911 CPE system beginning July 1, 2015.



**Table 4: Wauwatosa Dispatch Activity, 2013-2015**

Annual Volume of Incident Dispatches	2013	2014	2015
Police Dispatches	31,815	35,944	36,716
Fire Dispatches	1,721	1,696	2,302
EMS Dispatches	4,135	4,569	4,815

The PSAP staff also provides a number of non-emergency services for the Wauwatosa Police and Fire Departments. For example, as shown in **Table 3**, the volume of non-911, non-emergency calls and administrative calls far exceed the volume of 911 calls. A substantial number of the administrative calls relate to requests for parking permission that occur after traditional business hours. Currently, during first and second shifts, many non-emergency calls are answered by police department desk clerks and transferred to dispatchers if necessary; during third shift, they are handled solely by PSAP dispatchers.

PSAP dispatchers also provide the following additional services:

- 24/7 visual prisoner monitoring
- Deployment of towing services at request of police
- Provision of criminal history information at request of police
- Serves as a Primary Mutual Aid Box Alarm System (MABAS) dispatch center
- Window service for 50-60 hours/week for multiple functions, including parking permission receipt-entry, warrant verification/removal, TIME system administrative functions, and others

**Table 5** shows the 2016 authorized staffing required to fulfill both the emergency and non-emergency functions of the Wauwatosa PSAP.

**Table 5: Wauwatosa PSAP Authorized 2016 Staffing**

Position	Staff Size
Dispatcher/Call Taker FT	9.0
Dispatcher/Call Taker PT	0.7
Supervisor	1
Command Staff Supervisors	0.25
Support staff	
Admin Assistant, secretary, etc.	0
Other	0
<b>Total Positions (FTE)</b>	<b>10.95</b>



In 2015, the City spent nearly \$891,000 to support its PSAP staffing, as shown in **Table 6**. It should be noted that a new Dispatch Supervisor position was created in 2015 and was only filled for about half the year, so the cost associated with that position will increase in 2016. However, overtime costs exceeded expectations because of several planned and unplanned departures and should be reduced.

**Table 6: Wauwatosa PSAP Personnel Costs, 2015**

Personnel	2015 Actual
Total salaries and wages	\$541,069
Total dispatcher salaries	\$487,514 (9.5 FTE)
Total supervisor salaries	\$24,898 (0.5 FTE)
Total command staff salaries	\$28,657 (.25 FTE)
Overtime	\$107,817
Fringe benefits	\$242,076
<b>Total</b>	<b>\$890,962</b>

#### CONSOLIDATION SCENARIO: PERSONNEL-RELATED COST IMPACTS

We modeled a scenario in which Wauwatosa would eliminate its PSAP and instead contract with Milwaukee County to provide the following PSAP services:

- 911 emergency call taking
- Related non-emergency public safety call taking
- Dispatching services for Wauwatosa Police, Fire, and EMS
- Dispatch of towing companies upon Wauwatosa police request
- Provide criminal history information upon Wauwatosa police request
- Serve as the Primary Mutual Aid Box Alarm System (MABAS) dispatch center for Wauwatosa fire department.

We constructed our hypothetical scenario under the assumption that Wauwatosa’s PSAP services would be transferred to the *existing* OEM Communication Center. We use this assumption because we do not know when (or if) a new OEM facility will be constructed. If the contracting scenario were to occur after the new facility is built – and particularly, if the design of the new facility specifically anticipates that Wauwatosa’s PSAP (as well as other municipal PSAPs) will be added – then it is possible that revised staffing and operational procedures could be accommodated that could provide for more efficient and cost effective integration of the municipal PSAP services.

In considering the personnel-related financial impacts of such an arrangement, we made the following assumptions:

- **Line Staffing:** Based on the call volumes and dispatch activity shown in **Tables 3 and 4** and discussion with OEM officials, we assume that six full-time dispatcher positions would need to be added to the OEM Communication Center to handle Wauwatosa's public safety-related call taking and dispatching. This assumes that two dispatch workstations would be dedicated



to Wauwatosa dispatching (though only one would be staffed during third shift), as compared to the three that currently exist in Wauwatosa.<sup>3</sup> We believe this reduction in workstations (and associated staffing) can be achieved because the roughly 46,000 annual police administrative calls would continue to be handled in Wauwatosa, as well as the fact that approximately 2,000 of the calls currently received annually by Wauwatosa are wireless 911 calls transferred from the OEM Communication Center in the first place.

- **Supervision:** The OEM Communication Center would not need additional supervisory staff to accommodate the transfer of the Wauwatosa PSAP function.
- **Non-Emergency Functions:** As shown in **Table 7**, we do not recommend transferring all of the “non-emergency” functions now provided by the Wauwatosa PSAP staff to the OEM Communication Center. Specifically, 24/7 visual prisoner monitoring, window services, and police-related administrative call taking would remain with the City of Wauwatosa. We assume that three full-time desk clerk positions would need to be added to the third shift at the Wauwatosa Police Department to accommodate those functions. This also would provide the benefit of having an administrative presence at the police department on the third shift.<sup>4</sup>

**Table 7: Non-Emergency Services Currently Provided by Wauwatosa PSAP**

Current Non-Emergency Service	Recommendations for Service after Consolidation
24/7 visual prisoner monitoring	Transition function to desk clerks within Wauwatosa Police Department
Deployment of towing upon police request	Shift service to OEM Communication Center
Criminal history info upon police request	Shift service to OEM Communication Center
Serves as a Primary Mutual Aid Box Alarm System (MABAS) dispatch center	Shift service to OEM Communication Center
Window service for between 50-60 hours/week for multiple functions, including parking permission receipt-entry, warrant verification-removal, TIME system admin functions, admin lines call-taker, and others	Transition all functions to desk clerks within Wauwatosa Police Department

In **Table 8**, we summarize the staffing impacts for both Wauwatosa and OEM to accommodate the contracting scenario. Our analysis shows that overall – for Wauwatosa and OEM combined – **there would be a savings of approximately \$218,000 annually in personnel costs** associated with a shift to a contractual arrangement between Wauwatosa and the County for Wauwatosa's PSAP services.

<sup>3</sup> Because of vacation, holidays, FMLA, etc., we estimate that six FTEs will be required to provide this level of staffing.

<sup>4</sup> We note in the full report that Wauwatosa officials could consider purchasing an on-line overnight parking registration and payment system to remove the non-emergency call burden that the desk clerks would have to absorb and potentially reduce the number of new desk clerks that would be required. The City of Milwaukee has such a system now and they are widely used across the country.



**Table 8: Staffing Impacts of Contracting Scenario**

	Position Changes	Annual Salary Cost/(Savings)*	Annual Benefit Cost/(Savings)****
<b>City of Wauwatosa</b>			
Dispatcher (FT)	(9)	(\$454,837)	(\$172,383)
Dispatcher (PT)	(.7)	(\$35,824)	(\$5,374)
Supervisor	(1)	(\$58,332)	(\$22,108)
Command Staff Supervisor	(.25)	0**	
Desk Clerk	3	\$132,672	\$50,283
<i>Total Wauwatosa Staff</i>	<i>(7.95)</i>	<i>(\$416,321)</i>	<i>(\$149,582)</i>
Overtime		(\$40,253)***	(\$15,256)
<i>Total Wauwatosa</i>		<i>(\$456,574)</i>	<i>(\$164,838)</i>
<b>OEM</b>			
Dispatcher (FT)	6	\$240,380	\$102,834
Overtime		\$42,504+	\$18,183
<i>Total OEM</i>		<i>\$282,884</i>	<i>\$121,017</i>
<b>Total</b>	<b>(1.95)</b>	<b>(\$173,690)</b>	<b>(\$43,821)</b>

\* Based on 2016 average salaries and benefits reported by City of Wauwatosa and Milwaukee County.

\*\* While elimination of Wauwatosa's PSAP's would eliminate the need to devote the equivalent of .25% of a command staff supervisor's time to that function, a command staff position could not be eliminated. Consequently, no financial savings would be realized, though additional command staff capacity to fulfill other functions would be.

\*\*\* Based on 2013 total with add-on of 5% for inflation – data obtained for 2013-15, but 2014 and 2015 overtime totals skewed by unusual number of staff vacancies.

\*\*\*\* The City's fringe rate for 2016 for civilian employees is 50.9% of salary; however, approximately 13% of that is for legacy health care, which would not be eliminated if specific positions are reduced. Consequently, we applied a fringe rate of 37.9% to calculate fringe benefit savings for full-time employees (15% was used for part-time employees because no health care is involved). For the County, per OEM, we used an active fringe benefit rate of 42.78%.

+Based on three-year average (2013-2015) County per-dispatcher overtime multiplied by six dispatchers.



Our analysis of dispatch operations costs focuses on personnel costs because that is where the most substantial cost considerations would come into play with regard to our consolidation scenario. However, more limited cost factors would include the following:

- **Policy and Procedure Development:** There could be additional minor staff costs associated with development of new policies and procedures for managing the consolidated center. Similarly, new policies and procedures would be required for managing the technical liaison function between the OEM Center and the Wauwatosa Police and Fire Departments.
- **Training Costs:** While it would be hoped that several existing Wauwatosa dispatch staff members would transfer to OEM to continue to conduct Wauwatosa dispatching activities, there still would be a need for additional training for those staff members on OEM procedures. In addition, multiple OEM staff members would need to receive training on Wauwatosa dispatching technology and procedures. In fact, it is possible that each OEM staffer assigned to Wauwatosa dispatching would need about 500 hours of training, which would include Wauwatosa fire, police and EMS dispatch operational procedures, radio, and specialized tasks such as records look-up, MABAS, and the operational and organizational structures of the Wauwatosa departments. We cannot calculate a cost for that training time without knowing the specifics of how training would be organized and conducted, but OEM officials should be mindful of this as a potential cost that should be factored into budgeting for the first year of implementation.
- **Administrative Operations:** We assume that the OEM Communication Center could absorb the administrative “back office” functions associated with its additional staff with no extra cost, such as human resources, payroll, and budget planning/management. We assume that no additional staff would be required to perform these functions. Meanwhile, the contracting scenario would eliminate similar administrative support costs now incurred by Wauwatosa to support its 911 Center, but we deem it unlikely that position savings would result from such elimination.
- **Supplies/Other:** Wauwatosa officials indicate they spent approximately \$2,700 on dispatch center supplies and other miscellaneous costs (e.g. headsets) in 2015. Presumably, Wauwatosa would experience a savings of that amount and the OEM Communication Center would experience an additional cost of a similar amount should a contracting scenario occur.

#### CONSOLIDATION SCENARIO: TECHNOLOGY-RELATED COST IMPACTS

A key objective of the consolidation of the Wauwatosa PSAP with the OEM Communication Center is to maintain the level of service that is currently provided by the Wauwatosa PSAP to its residents and first responders. After analyzing activity levels at both PSAPs, we have determined that consolidation provides an opportunity to reduce the number of workstations from the existing three at the Wauwatosa PSAP to two Wauwatosa dispatching positions at the OEM Center.

The proposed changes would result primarily from leveraging the existing OEM call taking capacity for Wauwatosa calls. OEM has 10 telecommunicator workstations that support both calltaking and dispatching. Currently, the OEM telecommunicators answer Wauwatosa wireless 911 calls and transfer the calls to the Wauwatosa PSAP. The OEM call taking operations would continue to provide



that service to callers from Wauwatosa seeking police, fire or emergency medical services, but dispatching would take place at OEM.

Wauwatosa officials have stated that the majority of their 911 emergency calls are from landline phones in Wauwatosa. Those approximately 2,500 annual calls – as well as the 20,000 non-emergency public safety-related calls that currently come into the Wauwatosa PSAP annually – would need to be handled by OEM telecommunicators under the contracting scenario. This call volume of about 62 calls per day can be absorbed by the existing OEM call taking operations.

The two Wauwatosa workstations at the OEM Center would be used for dispatching Wauwatosa police, fire and EMS units (only one workstation would need to be utilized during third shift). Based on discussions with Wauwatosa officials, two dispatching positions can provide coverage for Wauwatosa emergency services, operating within the larger OEM operational environment.

The workstations at OEM that would be used for Wauwatosa dispatching would need dispatch support systems, including the Wauwatosa-configured ProPhoenix CAD, logging and recording system, telephone, and radio consoles. In addition, we would suggest that one radio console be moved from the Wauwatosa PSAP to the OEM Communication Center. This would leave Wauwatosa with two radio consoles during the transition for redundancy.

**Table 9** summarizes the estimated new equipment/technology that would be needed at the OEM Communication Center to accommodate the Wauwatosa PSAP services. **The total start-up cost for equipment is an estimated \$68,000.**

**Table 9: One-Time Equipment Costs for OEM Under Wauwatosa PSAP Contracting Scenario**

Estimated OEM Start-Up Costs		
Current Wauwatosa Technology and Systems	Need for new software licenses and hardware	Cost Estimate
<b>CAD</b>	ProPhoenix CAD Licenses; desktop hardware (computers, monitor, mouse, keyboard); servers; software configuration and set up.	\$5,000
<b>Logging/recording</b>	Per channel licenses for NICE Systems Logging and Recording System for radio and telephones and set up at Wauwatosa workstations.	\$5,000
<b>Radio dispatch consoles</b>	Motorola radio console for one workstation, reconfiguration of training workstation radio console for Wauwatosa use, and set up	\$50,000
<b>Wiring for moving CCTV from PSAP to Desk Clerk area</b>		\$1,000
<b>Interactive Voice Response (IVR)/Auto Attendant for Wauwatosa PD HQ Telephone System</b>		\$7,000
	<b>Estimated Total Cost</b>	<b>\$68,000</b>



In terms of future costs for equipment replacement/upgrade and maintenance, we assessed those costs for a five-year cycle under a scenario in which Wauwatosa retained its PSAP and compared them to a scenario in which it contracted with OEM.

In **Table 10**, we use figures provided by the City of Wauwatosa to show estimated technology replacement costs for PSAP-related equipment owned by the City under the status quo scenario. In the table, we only cite equipment that would be impacted by a contracting scenario, i.e. we do not include any dispatch-related equipment that Wauwatosa would need to continue to own and operate regardless of whether it contracts for PSAP services, such as fire house alerting systems and mobile data computers. The table shows that over the next five years, Wauwatosa would incur a cost of about \$382,500 for technology replacement.

**Table 10: Wauwatosa PSAP Five-Year Technology Replacement Costs**

Wauwatosa Current Technology and Estimated Capital Replacement Cost If Wauwatosa Remained an Independent PSAP						
Equipment type	System Manufacturer	Number of pieces of equipment	Age	Anticipated year of replacement	Typical replacement cycle (years)	Estimated replacement cost
911 CPE	Airbus	3 consoles	< 1 year	2022	5	\$200,000*
CAD	ProPhoenix	3+	11	2021	5	\$22,500**
Logging/recording	NICE			2017	5	\$19,000***
Radio dispatch consoles	Motorola	3 consoles	10+	2017	10	\$141,000****
<b>Wauwatosa Total Estimated Capital Replacement Costs</b>						<b>\$382,500</b>

\*Provided by Wauwatosa

\*\* Assume that a CAD system product upgrade will occur within 5 years; cost provided by ProPhoenix

\*\*\* Cost Input provided by Nice Systems

\*\*\*\* Estimated cost for Motorola Dispatch Console, provided by Motorola

Next, we estimated the capital equipment costs that would be incurred by OEM – and ostensibly charged to Wauwatosa under a contracting arrangement – over the same five-year period should OEM assume Wauwatosa's PSAP services. As shown in **Table 11**, those costs would total \$242,834. **The difference produces an estimated five-year savings of approximately \$139,666.**

**Table 11: OEM Five-Year Technology Replacement Costs Associated with Wauwatosa PSAP**

Projected 5-Year Capital Expenses After Wauwatosa PSAP Consolidated with OEM Communications Center		
Equipment type	Number of pieces of equipment	Estimated replacement cost
911 CPE	1	\$133,334
CAD	2	\$15,000
Logging/recording	2	\$19,000
Radio dispatch consoles	2	\$70,500
Fire House Alerting	1	\$5,000
<b>Total</b>		<b>\$242,834</b>



The more limited equipment replacement costs under the contracting scenario are based on the following factors:

- **911 Call Processing Equipment (CPE):** We added two replacement 911 Call Processing Equipment units in the OEM Communication Center in the five-year projection based on Wauwatosa's current call volume.
- **Computer Aided Dispatch (CAD):** The CAD system eventually would be integrated between the OEM and Wauwatosa requirements. Initially, one dispatch workstation and a back-up would be dedicated to Wauwatosa dispatch, requiring CAD software licenses. The cost estimate is based on historical data from ProPhoenix, without price increases.
- **Logging & Recording (L&R):** There is only a need for two workstations to be outfitted with the L&R system to support Wauwatosa dispatching. Wauwatosa no longer would require L&R at three positions, since call taking would be handled by the OEM staff at existing workstations.
- **Radio Dispatch Consoles:** The estimated cost includes \$47,000 for one new console to support Wauwatosa dispatching operations. We also assume that one console that currently is housed in Wauwatosa would be moved to OEM. The cost of reconfiguring that console at OEM would be about \$23,500.
- **Fire House Alerting:** Capital costs were based on the need for an updated CAD interface to a new Fire House Alerting system. Most of the capital costs are for equipment installed in fire houses and we assume that cost will remain with the Wauwatosa Fire Department.

It is also necessary to consider the maintenance and operating costs associated with technology and equipment. As with capital costs, technology maintenance/operating costs would be considerably lower if the Wauwatosa PSAP moves to the OEM Communication Center, as such expenses for several pieces of equipment already are being paid by OEM and would not represent new costs.

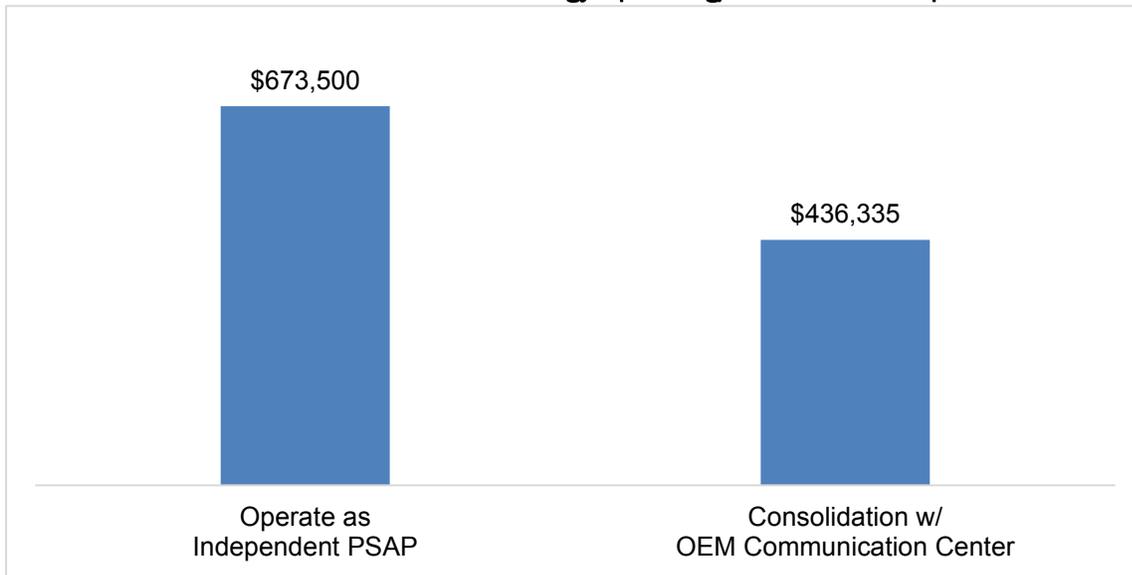
**Chart 1** compares our estimates of five-year maintenance costs that would be incurred by Wauwatosa if it continues to operate its own PSAP versus five-year maintenance costs that would be incurred by OEM if it were to provide Wauwatosa PSAP services.<sup>5</sup> The comparison shows an **estimated five-year savings of \$237,165 in technology maintenance/operating costs for the contracting scenario.**

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<sup>5</sup> We were informed by Wauwatosa officials that operating/maintenance costs for a recently-purchased CPE unit already have been paid on an up-front basis. Consequently, if a contracting scenario were to occur within the timeframe covered by that payment, then maintenance cost savings related to that equipment would not be realized, unless Wauwatosa was able to secure a rebate for any future maintenance fees already paid.



**Chart 1: Five-Year Wauwatosa PSAP Technology Operating/Maintenance Expenses**



**CONSOLIDATION SCENARIO: OVERALL COST IMPACTS**

Our financial analysis indicates there is potential for substantial collective cost savings if Wauwatosa and OEM decide to pursue a contracting scenario for Wauwatosa's PSAP services. In **Table 12**, we summarize the potential annual savings by annualizing our five-year equipment/technology replacement and equipment/technology maintenance estimates and plugging in our estimated personnel savings. We emphasize that these are merely projections, and that they do not take into account the impacts of annual salary/benefit increases and inflationary adjustments. Also, as noted above, we do not include in our analysis a range of relatively minor financial impacts that do not fall within these three categories.

With those caveats in mind, **we estimate a total annual collective savings of approximately \$293,000.** In other words, OEM could administer the Wauwatosa PSAP function at an annual cost that is \$293,000 less than Wauwatosa currently is paying, even while accounting for Wauwatosa's need to hire new desk clerks to backfill some of the tasks currently performed by dispatchers.

**Table 12: Estimated Collective Annual Savings Associated with Contracting Scenario**

	Wauwatosa	OEM	Total
Personnel	\$621,412	(\$403,901)	\$217,511
Equipment/Technology Replacement	\$76,500	(\$48,567)	\$27,933
Equipment/Technology Maintenance	\$134,700	(\$87,267)	\$47,433
<b>Total</b>	<b>\$832,612</b>	<b>(\$539,735)</b>	<b>\$292,877</b>



While the table shows "savings" for Wauwatosa and "costs" for OEM, that obviously is not how a contracting scenario would be effectuated. We can assume that under a potential contract, OEM would charge Wauwatosa both for its additional direct cost of \$539,735 per year, and for some percentage of OEM's general overhead cost associated with running its communication center.

We have no way of analyzing what that overhead charge would be, but we can construct a hypothetical scenario in which that charge would be based on Wauwatosa's percentage of the OEM Communication Center's total call volume. In 2015, the call volume at the Wauwatosa PSAP for the types of calls that would be handled by OEM (i.e. 911 and non-911 public safety calls) was 24,398 calls, which amounts to approximately 13% of the 184,643 911 calls handled by OEM. OEM indicates that it incurred approximately \$1.1 million in non-personnel costs for its communication center in 2015.<sup>6</sup> If we apply the 13% to the \$1.1 million, we come up with a hypothetical overhead charge of \$143,000.

As shown in **Table 13**, if the OEM-Wauwatosa contract contained an overhead charge of \$143,000 annually and Wauwatosa fully reimbursed OEM for the direct costs outlined above, **Wauwatosa still would experience a savings of more than \$150,000 annually.** Meanwhile, the County would benefit from an annual allocation of \$143,000 to help defray its OEM Communication Center overhead.

**Table 13: Annual Charges to Wauwatosa Under Hypothetical Wauwatosa-OEM PSAP Contract**

	Year 1	Subsequent Years
Direct costs	\$539,735	\$539,735
Overhead	\$143,000	\$143,000
Start-Up	\$68,000	\$0
<b>Total</b>	<b>\$750,735</b>	<b>\$682,735</b>
<i>Current Wauwatosa PSAP Cost</i>	<i>\$832,612</i>	<i>\$868,612</i>
<b>Total Wauwatosa Savings</b>	<b>\$81,877</b>	<b>\$149,877</b>

In the first year, if Wauwatosa was fully charged for the \$68,000 in start-up costs outlined earlier, then it still would experience a first-year savings of \$82,000. However, it is very difficult to predict issues that could arise during initial implementation that could generate additional costs, including the need to train existing OEM staff to be able to handle Wauwatosa call taking and dispatching. Consequently, the affected parties may wish to assume there would be no savings in the first year, though savings in subsequent years should approximate those estimated in this analysis.

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<sup>6</sup> It is important to note that we have not conducted an extensive evaluation of OEM's overhead costs to determine the precise nature of those costs and the extent to which they would be shared with Wauwatosa under a contracting scenario. Such deliberation would need to occur during contract deliberations. Consequently, the \$1.1 million only should be considered a rough estimate at this time.



## CONSOLIDATION SCENARIO: CONCLUSION

PSAP consolidation is a national trend; in fact, some states are imposing mandatory consolidation timelines. While Wisconsin has not opted to require mandatory consolidation of municipal PSAPs, ongoing capital expenditures and rising personnel costs are forcing agencies to look for alternatives.

The Wauwatosa case study provides perspective on the potential cost savings and economies of scale that can be realized through consolidation. In this brief analysis, we primarily focused on financial impacts, but there also are potential operational improvements that should be taken into account, including the following:

- **Reduced Dispatch Processing Times** – The OEM Communication Center currently receives all wireless 911 calls for emergency services emanating from Wauwatosa and transfers most of those calls to the Wauwatosa PSAP for dispatching. Emergency callers using wireless phones must first talk with an OEM call taker regarding the nature of the problem and their location, and then be transferred to a Wauwatosa call taker. Industry averages for this transfer range from 20-60 seconds. Conversely, under the contracting scenario, 911 wireless calls from Wauwatosa would be fielded by a Unified Call Taker position at OEM who would send dispatch information directly to Wauwatosa Fire, Police, and EMS.
- **Cost Effective Purchasing and Maintenance of IT and PSAP Resources** – Wauwatosa's PSAP currently negotiates its own technology contracts and provides its own maintenance of those systems. Consolidation with the County could provide a basis for more cost effective purchasing of technology and equipment given that OEM purchases a larger volume. In addition, the use of the County's larger IT staff presents an opportunity to make the most efficient operational use of IT staff to maintain systems.
- **Staff Hiring, Retention and Effectiveness** – As a larger PSAP, the OEM Communication Center would be better positioned than the Wauwatosa PSAP to offer career ladder opportunities that are essential to retaining dispatch personnel. In addition, given its access to the County's extensive centralized human resources function, OEM likely would be better equipped to engage in recruitment activities and to offer training and professional development opportunities to staff. Also, a larger PSAP provides opportunity for streamlined and standardized call handling and dispatching protocols and training, which can decrease opportunities for error and enhance safety of responders and the public.

As noted above, our case study also assumes that Wauwatosa's PSAP services would be absorbed by OEM in its existing facility, and that Wauwatosa is the only municipal PSAP that would transfer its operations to OEM. Construction of a new facility that would be designed specifically to accommodate one or more municipal PSAP operations could allow for a new staffing paradigm (e.g. distinct workstations for call taking and dispatching) and other operational efficiencies that would enhance service-level effectiveness and financial savings.

Overall, we believe the potential collective savings and operational efficiencies/improvements are significant enough to warrant a more rigorous examination of the possibility of combining Wauwatosa's PSAP operations with the County's. Furthermore, similar consideration should be given for other Milwaukee County municipalities with stand-alone PSAP operations if OEM moves forward with a new facility.

