



MILWAUKEE—LA FOLLETTE POLICY ANALYSIS PROJECT

Spring 2004

**Consolidation of Fire and
EMS Dispatching Services**

**Alternative Funding
for Tree Pruning**

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Foreword

The two reports in this publication are the result of collaboration between the Robert M. La Follette School of Public Affairs at the University of Wisconsin–Madison and the City of Milwaukee’s Budget and Management Division. The objective of this collaborative effort is to provide La Follette graduate students with the opportunity to improve their policy analysis skills while contributing to the capacity of the city government to effectively provide public services to the citizens of Milwaukee.

The La Follette School offers a 2-year graduate program leading to a Master’s Degree in Public Affairs. Students specialize in policy analysis or public management, or, in many cases, both. They spend the first year and a half of the program taking courses that provide them with the tools needed to analyze public policies. The authors of these reports are all currently enrolled in Public Affairs 869, *Workshop in Program and Policy Analysis*. Although acquiring a set of policy analytic skills is important, there is no substitute for *doing* policy analysis as a means of *learning* policy analysis. Public Affairs 869 provides them with that opportunity.

Milwaukee presents an ideal venue for conducting program and policy analysis. Like any large American central city, Milwaukee has its share of difficult economic and social problems and thus provides fertile ground for doing policy analysis. Under the guidance of the Budget and Management Division, the city government in Milwaukee is constantly searching for better ways to deliver city services and lower costs. To achieve these goals creates a big demand for policy analysis. The three reports that follow consist of policy analyses of problems or issues chosen by the budget office. The students in Public Affairs 869 were assigned to one of two project teams. Each team was provided with a topic, and a staff person from the Budget and Management Division was assigned to each group as an official liaison.

With recent reductions of financial assistance from the state, and continual political pressure to reduce property taxes, municipal governments in Wisconsin, including the City of Milwaukee, search for ways to provide public services at reduced costs. In *Fire/EMS Dispatching Service in Milwaukee County: An Evaluation of Consolidation*, the authors explore the cost saving potential of combining fire and EMS dispatching services of all the suburban communities in Milwaukee County with Milwaukee’s fire/EMS dispatching service. They also investigate the possibilities of combining police and fire dispatching across jurisdictions.

Milwaukee is well known for its tree-lined streets. The city maintains an urban forest of 200,000 street trees, providing residents with street trees and maintaining a regular tree pruning cycle. The cost of tree pruning is currently financed entirely from the city’s property tax levy. In *The Forest for the Trees: An Analysis of the City of Milwaukee’s Funding of Street Trees*, the authors explore alternatives ways to fund the city’s tree pruning services. They assess the advantages and disadvantages of financing tree pruning by directly charging property owners a fee for the pruning of their street trees.

These two reports do not provide the final word on the problems they address. The graduate student authors are, after all, relatively inexperienced policy analysts. Nevertheless, much has been accomplished. I trust that both the students and city officials have learned a great deal about the issues involved and hope that the reports help define the issues and provide a foundation for further analysis and decision making by city officials.

The Milwaukee–La Follette Policy Analysis Project would not have been possible without the support and encouragement of Joseph Czarnecki, the Budget Director of the City of Milwaukee. Eric Pearson, who served as the project coordinator for the Budget and Management Division, solicited ideas for policy analysis projects from city staff, both in his office and from other city agencies. He monitored the progress of two projects and coordinated the efforts of the Budget and Management Division staff in support of the projects. Sandy Rotar served as liaison for the Fire/EMS dispatch consolidation project, and Erick Shambarger for the urban forestry project. They were both wonderfully generous with their time and advice. Dozens of other people in city government also contributed to the success of the projects. Their names are listed in the acknowledgements that accompany each project report.

I am again very grateful to Wilbur R. Voigt whose generous gift to the La Follette School is being used to support the Milwaukee–La Follette Policy Analysis project. With his support, we are able to finance the printing, copying, long distance telephone, and travel expenses associated with the project.

The Milwaukee projects also benefited greatly from the active support of the staff of the La Follette School. Terry Shelton, the La Follette Outreach Director and Craig Allen, the Information Systems Manager, provided the students with constructive criticism and advice on their oral presentations of the reports. Terry, along with Kari Reynolds, Elizabeth Hassemer, and Gregory Lynch contributed logistic support for the projects. Anita Makuluni edited the two reports and shouldered the task of producing the final bound report.

It is my hope that by involving La Follette students in the tough issues faced by the government of Milwaukee, they have not only learned a great deal about doing policy analysis, but have gained an appreciation of the complexities and challenges faced by city governments. I also hope that the two reports that follow will prove useful to the government of the City of Milwaukee in its ongoing efforts to make Milwaukee a better place to live.

Andrew Reschovsky
May 3, 2004

Fire and EMS Dispatching Services in Milwaukee County

An Evaluation of Consolidation

Chris Kozlowski, Sara Mooren, and Michelle Woolery

EXECUTIVE SUMMARY

In the current climate of tight municipal budgets, local governments around the country face pressure to cut costs without reducing the level of services provided. The municipalities within Milwaukee County are no exception. One strategy to cut costs and potentially improve the level of service is for communities to consolidate operations that are duplicated across communities. One such function among the municipalities in Milwaukee County is the dispatching of fire and EMS emergency telephone calls.

In this report, we examine the feasibility of the City of Milwaukee Fire Department operating a consolidated fire and EMS dispatching system for all of the municipalities in Milwaukee County. The City of Milwaukee cannot require its suburbs to participate in a consolidated dispatch center, however, so the cost savings and public safety benefits of such a system must outweigh suburban fire departments' desire to offer autonomous fire and EMS dispatching.

The results of our evaluation indicate that while there may be potential public safety benefits, the suburban communities would not be likely to see any cost savings through consolidation of fire and EMS dispatching. Given the lack of evidence for cost savings and considering the attitudes and beliefs of the chiefs in suburban fire departments, it seems unlikely that the City of Milwaukee would be able to garner the political support necessary to establish a centralized fire and EMS dispatch system.

Whereas a consolidation of fire and EMS dispatch services only would not result in cost savings, a cursory estimate revealed that consolidating police, fire, and EMS dispatching would likely yield cost savings for both the City of Milwaukee and its suburban communities. Note, however, that we did not fully examine the technical details of this alternative, such as equipment, training and standardization of protocols.

Based on our findings, we do not recommend that the City of Milwaukee spend political and financial capital pursuing a consolidated fire and EMS dispatch center but they may wish to further investigate the possibility of consolidating police, fire and EMS dispatching within the county. In addition, the city may wish to explore the possibility of handling cellular 9-1-1 calls for the county.

The results presented in this paper are based on in-depth interviews with contacts from each municipality's fire department and dispatch center as well as background information from several dispatchers and former fire chiefs from communities outside of Milwaukee County.

We surveyed each municipality that includes their dispatch budget, call volume, staffing and training information. The interviews, survey responses and a review of relevant literature form the basis for the analysis and recommendations presented in this report.

INTRODUCTION

In the current climate of reduced shared revenue allocations from the State of Wisconsin, scaled-back state sponsorship of public programs, and growing opposition to property tax increases, many local governments around the state face pressure to cut costs without reducing the level of services provided. The municipalities within Milwaukee County are no exception. The City of Milwaukee's shared revenue, for example, was reduced by nearly \$10 million for 2004.¹ If the municipalities within Milwaukee County hope to avoid reductions in programs, they must respond to these pressures either by increasing revenues or by identifying more efficient methods of delivering services and thereby reducing costs. One way to reduce costs is to transfer functions from the city level to the county level so that services can be delivered with more economic efficiency.

One function for Milwaukee County communities to consider consolidating is the emergency dispatch system. Many counties across the country have successfully lowered the costs of providing emergency communication services while maintaining or improving the quality of dispatching, often through investments in better technology (Kefalas, 1993). The City of Milwaukee recently constructed a state-of-the-art dispatch center with enough capacity to serve the entire county. For this and other reasons, the city is interested in exploring the possibility of providing fire and EMS dispatching services for its neighboring communities within Milwaukee County. This report analyzes the feasibility of the consolidation of fire and EMS dispatching services.

Consolidation is likely to improve public safety but increase costs for most suburban communities. We also conducted a preliminary analysis of a second alternative—the complete consolidation of emergency communications in Milwaukee County, including the dispatching of police services. Our results indicate that this dispatching system is more likely to reduce costs for the suburban communities and the City of Milwaukee while enhancing public safety.

METHODOLOGY

This report analyzes the feasibility and desirability of a regionalized fire and EMS dispatch center for the 19 municipalities² within Milwaukee County. (See Appendix A for a detailed map of the county.) We compared a consolidated fire and EMS dispatch center operated by the City of Milwaukee with the current system of each community that maintains its own dispatch center. We reviewed evaluations of consolidated dispatch centers in other parts of

¹ City of Milwaukee Department of Administration, Budget and Management Department.

² The municipalities included in the study are Cudahy, Franklin, Greendale, Greenfield, Hales Corners, the North Shore Fire Department (Bayside, Brown Deer, Fox Point, Glendale, River Hills, Shorewood, and Whitefish Bay), Milwaukee, Oak Creek, St. Francis, South Milwaukee, Wauwatosa, West Allis and West Milwaukee.

the state and country and conducted in-depth interviews with almost all fire chiefs and lead dispatchers in each community in Milwaukee County. We developed a detailed questionnaire and emailed it to each community. (See Appendix B for each completed survey.³) Most communities filled out the questionnaire independently; a few answered survey questions during a phone interview.

Regardless of the way the initial survey was completed—through the mail or over the phone—we also conducted phone interviews with the fire chiefs and the lead dispatchers to obtain their opinions on a consolidated dispatch system. In some cases, we interviewed the police chief or other personnel involved in the supervision of dispatching operations. For a few communities, we were unable to obtain complete information and were forced to estimate budgets, call volume, or both. We also spoke with other officials familiar with dispatching operations and related technology such as geographic information systems (GIS) mapping. All of these interviews and data form the basis for the analysis and recommendations found in this report.

OVERVIEW OF DISPATCHING SERVICES IN MILWAUKEE COUNTY

The City of Milwaukee and its suburban communities operate and manage their fire and EMS dispatching services differently, and some of these differences are particularly important. For example, the City of Milwaukee currently has separate police and fire dispatch teams, whereas most of the surrounding municipalities within Milwaukee County combine police and fire dispatching under the supervision of the police department. Fire and EMS dispatching is provided by the police department in each of the suburban communities, with the exception of the seven communities that jointly formed the North Shore Fire Department. Also, the Village of West Milwaukee receives all fire and EMS services, including dispatching, from the City of Milwaukee.

This section will describe and compare the fire and EMS dispatch budget, staff, training opportunities and technology in the City of Milwaukee and the suburbs within Milwaukee County. As a starting point for comparison, Table 1 summarizes key information about the staff and budget for each municipality in the county.

³ Surveys were adapted from forms used in a dispatching consolidation study in Kalamazoo County, Michigan (see list of references).

Table 1
Key Budget and Staff Information, by Community

Community	Population ^a	Calls for Fire and EMS					
		Total dispatch budget ^b	Percent of 9-1-1 calls ^c	Estimated budget spent	Minimum dispatchers per shift ^d	Number of calls ^e	Cost per call
Cudahy	18,323	\$468,204	9.31	\$43,576	1	1,958	\$22
Franklin	31,467	707,129	7.63	53,962	2	2,494	22
Greendale	14,169	443,973	7.98	35,412	1	1,172	30
Greenfield	36,000	775,000	13.24	102,618	2	3,674	28
Hales Corners	7,699	230,762	20.68	47,714	1	709	67
North Shore Fire Department	65,539	823,817	15.20	125,247	2	5,558	23
Oak Creek	30,856	844,720	<i>10.03</i>	84,716	2	2,911	29
St. Francis	8,755	<i>181,551</i>	<i>9.80</i>	17,790	1	866	21
South Milwaukee ^f	21,374	201,200	10.00	20,120	1	2,600	8
Wauwatosa	46,802	666,215	12.51	83,373	2	5,000	17
West Allis	60,923	<i>1,283,855</i>	<i>9.80</i>	125,803	n.a.	6,122	21
Suburban total or average	341,907	6,626,426	11.47	740,330	n.a.	33,064	22
City of Milwaukee and West Milwaukee	599,394	8,572,983	9.40	1,506,328	4	94,000	16
Countywide total or average	941,301	15,199,409	11.35	2,246,658	n.a.	127,064	18

NOTE: Estimates are italicized.

^aEstimated population for 2003, obtained from The Applied Population Lab, University of Wisconsin, www.wisstat.wisc.edu

^bThe total budget information for St. Francis and West Allis are estimates. The calculation is based on the average budget for the other municipalities in the county and adjusted for population size. See Appendix E for more detail.

^cIn some instances, the total number of 9-1-1 calls had to be estimated; the corresponding percentages are italicized. See Appendix E for more detail.

^dWest Allis did not provide information regarding the number of dispatchers per shift.

^eThe total number of fire and EMS runs are used as a proxy for the total number of fire and EMS calls dispatched. West Allis and St. Francis did not provide information for the number of fire and EMS runs. The calculations are based on county averages and adjusted for population size.

^fSouth Milwaukee's dispatch center is currently understaffed and the budget reflects this.

Budget and Staff

The City of Milwaukee Fire Department employs 21 full-time employees to handle fire and EMS dispatching services. One chief dispatcher and five dispatching supervisors manage the group, bringing the total of the group to 27. The 24-hour workday is split into three shifts with a minimum of four employees on duty to take calls at all times. During each shift, one

employee performs dispatching duties and the others receive calls.⁴ Staffing is typically higher (up to six dispatchers) during the second shift, when call volume peaks. The fire department responds to fires, specialized rescues, and life-threatening injuries; for emergencies that are not life threatening, private ambulances under contract with the city provide transport to the hospital.

In contrast, the suburban communities typically have one to four police, fire and EMS dispatchers on duty during peak hours. Several of the small municipalities have only one dispatcher on duty during some shifts, typically the night shift. During the interviews, several of the chiefs from smaller suburban fire departments said that, due to their smaller staffs, their capacity for handling crisis situations is limited, and they have difficulty freeing up dispatchers for training, breaks and time off.

When comparing the staff size and budget for Milwaukee and suburban communities, note that total dispatching expenditures are related to the municipality's size and the number of emergency calls received. The suburban communities typically have fewer calls and therefore considerably smaller dispatch staffs and budgets than the City of Milwaukee. For example, the estimated annual fire and EMS dispatch budgets in the suburban communities range in size from \$17,000 to approximately \$125,000, compared to over \$1.5 million for the City of Milwaukee. Note that the City of Milwaukee spends less *per call* than the suburban communities: \$16 versus \$22 per call, respectively.

Technology

The City of Milwaukee recently built a police station and a state-of-the-art dispatch center for the fire and police departments. Although the two departments' dispatching teams are located on the same floor, each operates separately with distinct functions, budgets, and supervisors. The fire department's dispatch center features the latest technology, including a computer-aided dispatch (CAD) system that uses geographic information system (GIS) software to map out the locations of emergency incidents. The upgraded technology in the new center also features an advanced recordkeeping system, automated voice dispatch instructions, and easier access to other state and national emergency and law enforcement agencies. The entire center also houses an extensive and secure backup system for both the fire and police dispatching teams. The city spent over \$64 million on the project, including acquisition, construction and technology costs. The total technology portion of the project cost over \$18 million, with \$7 million of the total going toward the technology used by the fire department (Rotar, 2004).

Some aspects of dispatching remain unchanged under the new system. For instance, under both the old and new systems, police dispatchers initially field all 9-1-1 calls originating from land lines in the City of Milwaukee and West Milwaukee. Cellular 9-1-1 calls, however, are initially answered by the Milwaukee County Sheriff's Office and then transferred to the appropriate municipality. (See Appendix C for more information regarding wireless 9-1-1 calls in Milwaukee County.) When a 9-1-1 call comes in from a land line, automated name index (ANI) technology pinpoints the location of the caller and immediately

⁴ Although some departments distinguish between call-takers (or telecommunicators) and dispatchers, in this report we refer to all employees that handle emergency calls as dispatchers.

displays the name and address of the telephone's owner on a computer screen. If the incident requires a fire, emergency medical, or specialized rescue response, the call is transferred to the fire department. The dispatcher takes the call, identifies the specifics of the situation and enters this information into the computer. Under the old system, the dispatcher manually radioed the appropriate fire station to notify them of the emergency.

Under the new system, more stages of the notification process are automated. The dispatch employee takes the call and types information about the emergency into the computer. The CAD system pinpoints the location of the emergency call, displays it on a monitor, and displays information about the closest fire station that has appropriate resources. One dispatcher per shift is responsible for reviewing these instructions before electronically forwarding them to the fire station. A tone and an automated voice sound in the receiving station, alerting them to the emergency. The information is also transmitted electronically and printed at the fire station.

In the near future, automatic vehicle location (AVL) technology will be added to the CAD system to track and reveal the location of fire trucks on the monitor, assisting dispatchers to identify gaps in service coverage. Eventually, the fire department hopes to install laptop computers with global positioning capability in all fire trucks. These computers will be connected to the main CAD system, and firefighters will be able to calculate electronically the shortest route to the incident and be notified of the location of other units. If current mapping information is improved, the new system will ultimately allow dispatchers and firefighters to identify potential obstacles such as a blocked road. This update is likely to take place within the next 2 years (White, 2004).

The suburban communities have a variety of CAD, radio and recordkeeping systems. In the communities we surveyed, both the type and the age of the radio systems differed across departments. Some communities have recently upgraded their equipment, while others are using equipment that is 20 years old. (See Appendix D for information on the frequency and age of each suburb's communication system.) None of the suburban communities have a system with GIS mapping, AVL, or automated voice dispatch capabilities. Even without this advanced technology, however, the suburbs are roughly comparable to the City of Milwaukee in terms of average response time (from the time a call is received to the time equipment and resources are dispatched).

Training

In many situations, Milwaukee fire dispatchers stay on the line to offer emergency medical dispatching (also referred to as pre-arrival instructions) to the caller. These instructions are always offered when appropriate, and approximately 75 percent of callers accept the instructions (Stanford, 2004). The ability to deliver pre-arrival instructions, such as CPR or emergency first aid, requires an additional 44 hours of employee training, which requires a significant financial and time commitment from the department. The City of Milwaukee is the only community in Milwaukee County with enough staff capacity to offer this service.

With smaller staffs and only one or two dispatchers on duty at a time, suburban departments have difficulty freeing up dispatchers for additional training such as emergency medical

dispatching. In addition, fire and EMS calls represent only a small fraction of all 9-1-1 calls in suburban departments, so supervisors have difficulty justifying the expense of specialized training. Consequently, none of the dispatching staff in the suburban departments have been trained in emergency medical dispatching. Smaller staffs also have less flexibility in scheduling and more difficulty providing coverage for staff members who are on break or taking paid time off, vacation, or sick days.

EVALUATION OF CONSOLIDATING FIRE AND EMS DISPATCH SERVICES

Any plan to consolidate dispatching services should aim to reduce costs and improve public safety. In the case of Milwaukee and its suburbs, a successful consolidation plan must meet these goals both for the City of Milwaukee and for its suburbs. Because the City of Milwaukee cannot require suburban communities to participate in a consolidated dispatch center, the plan must be feasible both politically and administratively. In other words, the logistics must be possible and the plan must be appealing to both the City of Milwaukee and the suburbs.

Steps Already Taken by Suburban Communities

Many suburban communities have already taken steps to reduce costs and improve public safety. For example, the cities of Oak Creek and Greenfield have recently moved to the combined police and fire model for dispatching. The North Shore communities have consolidated fire and dispatch services under the North Shore Fire Department so that one center dispatches all fire and EMS calls for the entire seven communities. South Milwaukee and Cudahy are in the process of consolidating dispatching services for fire and EMS with police services. In each case, the main goal of regionalization is cost savings.

To address issues of vulnerability in times of major disasters and widespread crises, the suburban communities have established mutual aid agreements with neighboring communities that allow them to respond when additional resources are needed or incidents take place close to jurisdictional borders. Also, suburban communities will soon enact the Mutual Aid Box Alarm System (MABAS). Under this system, suburban fire departments will call the Wauwatosa dispatch center to request additional assistance during catastrophes, and Wauwatosa will be responsible for dispatching resources from surrounding communities.

Analysis of Consolidation of Fire and EMS Dispatching in Milwaukee County

One alternative to the current organization of dispatching services in Milwaukee County is to forward all fire and EMS 9-1-1 calls from land lines to the City of Milwaukee Fire and EMS dispatch center. All 9-1-1 calls from land lines would still go to each community's police department dispatch center initially. Then, calls that required fire and EMS services would be transferred to the City of Milwaukee's Fire Department, which would dispatch fire fighting or EMS resources. Although this system would enhance public safety, cost savings would be insignificant, and most of the communities do not support moving to a centralized fire and EMS dispatch center.

Cost savings

In order to consolidate fire and EMS dispatch services, the cooperating communities would require additional equipment and system changes. Suburban communities would need to connect to the central CAD system. Some communities would need to switch to an 800 MHz radio frequency so that the dispatch center, firehouses, and firefighters would be able to communicate before and after dispatch. Mapping information for the suburbs would be added to the CAD system. Fortunately, the City of Milwaukee would be able to obtain GIS data for the surrounding suburbs at a negligible cost because Milwaukee County's Department of Public Works is in the process of mapping out the suburban communities for dispatching and other purposes. (See Appendix E for more information on this project.) In our analysis, we assumed that the Milwaukee Fire Department would not need to hire additional staff because the increase in call volume would represent less than an additional hour of work per shift for each dispatcher. (See Appendix E for detailed calculations.)

To make it possible for the City of Milwaukee to dispatch all fire and EMS calls for the county, the suburban communities would need to continue to operate a dispatch center to field all 9-1-1 calls and to dispatch police resources. Because calls for police service represent the vast majority of 9-1-1 calls, it is actually unlikely that the suburban dispatch centers would be able to reduce their staffing levels. In addition, many suburban staffs currently operate with only one or two dispatchers per shift. Even if the number of dispatched calls were reduced by 15 percent, suburban centers still could not afford to eliminate an entire position. Consolidation therefore would not allow the suburbs to reduce their budgets.

Consolidation would, however, reduce workload for suburban centers and allow them to devote time to other duties. To estimate cost savings for the suburban departments, we used a low and a high approximation of the annual proportion of staff time spent dispatching fire and EMS calls. (The low estimate is based on 5 minutes per call, and the high estimate is based on 10 minutes per call. See Appendix E for more details.) We multiplied this proportion by the total wages paid to each community's dispatching team to monetize the value of the time each department would gain as a result of receiving fewer calls. We used a fee schedule based on a flat rate of \$16 per call (the City of Milwaukee's average cost per call) to estimate the suburban payments to the city. Table 2 summarizes the cost savings for suburban departments. (These figures do not include the cost of additional equipment.)

In Table 2, a positive number indicates that consolidating the dispatch centers would result in increased costs for the suburb; a negative number indicates a cost savings. Using the low estimate, none of the suburbs would realize cost savings. Using the less conservative, high estimate, only two suburban departments might see cost savings. The suburbs' current consolidated police, fire, and EMS emergency communications systems therefore seem to provide dispatching services in a reasonably efficient and cost-effective manner.

Table 2
Changes in Budgets at a Flat Rate of \$16 Per Call

Community	Low estimate		High estimate	
	Change	Percent of budget	Change	Percent of budget
Cudahy	\$22,600	4.83	\$13,900	2.97
Franklin	23,100	3.27	6,400	0.91
Greendale	13,800	3.11	8,900	2.00
Greenfield	31,700	4.09	4,600	0.59
Hales Corner	9,800	4.25	8,200	3.55
North Shore Fire Department	45,400	5.51	1,800	0.22
Oak Creek	23,200	2.75	-200	-0.02
St. Francis	12,400	6.83	10,900	6.00
South Milwaukee	36,600	18.19	31,600	15.71
Wauwatosa	48,300	7.25	16,600	2.49
West Allis	23,200	1.81	-51,600	-4.02

NOTE: Estimates for St. Francis and West Allis communities are based on the average budgets of other municipalities in the county, adjusted for population size.

Because the complete consolidation of fire and EMS dispatch services would involve initial capital expenditures that have not been included, these estimates may even be overly optimistic. On the other hand, some of these figures may under-represent actual cost savings if communities are able to provide police dispatching with fewer dispatchers per shift. This may be possible for some of the communities that have more than two dispatchers on duty per shift, but it is not likely. Thus, the cost advantages of consolidation of fire and EMS dispatching would be negligible or nonexistent.

Public safety

A consolidated fire and EMS dispatch center would improve public safety, both on a daily basis and in the event of a catastrophe that involves more than one jurisdiction. Enhanced communication between departments, countywide coordination of resources, and a larger and more highly trained staff would all increase Milwaukee County's ability to respond to public safety needs.

A consolidated system would require fire departments to move to a radio system that would facilitate communication between municipalities. This is particularly important in the event of a major crisis. Radio frequencies vary among fire departments, and so do the ages of the various communication systems in use. The county currently provides one channel for all agencies to use in the event of a large-scale disaster. To access this 800 MHz frequency, however, departments currently using VHF or UHF bandwidths would need to employ a patch at either the dispatch center or the command center. Several of the interview respondents stated that this could become cumbersome to manage, especially in the event of a significant disaster or emergency.

Another public safety advantage of a consolidated system would be improved coordination of personnel and resources. The centralized dispatchers would have access to a CAD system that would map out the entire county and identify all available resources. A centralized center would be able to efficiently locate, organize and dispatch necessary personnel and equipment.

Consolidation would ensure that more than one dispatcher would always be on duty and would also give all communities access to the City of Milwaukee's highly skilled and trained dispatchers. Because they dispatch only fire and EMS calls, they are very familiar with the associated equipment, protocols and types of emergencies. Furthermore, Milwaukee is the only municipality that employs dispatchers trained in emergency medical dispatch (EMD).

Although our analysis shows that a consolidated fire and EMS system would be likely to enhance public safety, we are unable to quantify this benefit. The potential improvements in safety should be weighed against the increased budgetary costs of a consolidated system. If the municipalities of Milwaukee County are committed to improving intercommunication and coordination of services, they should carefully consider the advantages of a consolidated dispatch center.

Political and administrative feasibility

Gaining countywide support for a consolidated dispatch system could be difficult. Although several of the fire chiefs said they thought such a system could potentially offer advantages such as EMD-trained dispatchers and coordination of resources, most indicated that they believed their community would resist such change. Suburban communities may prefer to maintain local identity and control. In addition, several of the fire chiefs expressed concern that the centralized dispatchers might be less invested in their community and therefore might not adequately meet the needs of their jurisdiction. They also expressed the concern that a centralized system might not be held sufficiently accountable if they provided dissatisfactory dispatch services to the suburbs. They also indicated they might not have as much leverage under a consolidated system.

Almost all of the fire chiefs and dispatch supervisors expressed concerns about anticipated administrative difficulties. Although EMS response protocols are standardized throughout the county, many of the communities follow different protocols in providing fire services; for instance, one community might respond to a particular type of fire in a unique way—with different equipment or with more or fewer firefighters. Centralized dispatchers would have to be aware of these various protocols, which might put unreasonable pressure on them. According to the City of Milwaukee, however, their new CAD system could be programmed to offer instructions based on the protocols of each municipality (Stanford, 2004). Fire chiefs and dispatch supervisors also expressed concern about radio communication and records management under a consolidated system. Many felt that consolidation would necessitate standardizing these features across jurisdictions. Finally, some of these communities recently reorganized their dispatch systems, upgraded them, or have plans to purchase new equipment. These communities would be less inclined to consolidate with Milwaukee because they recently invested in another plan for dispatch services.

CONSOLIDATION OF POLICE, FIRE AND EMS DISPATCH SERVICES

Consolidation of fire and EMS dispatch services alone would not result in cost savings but expanding the scope of services to include police dispatch is an alternative worth considering further. A thorough analysis of the technical feasibility of consolidating police dispatch services was not possible within the scope of our current study but preliminary analysis indicates that this model would save suburban communities money and increase net revenues available to the police. Furthermore, this system would enhance public safety by coordinating communication between police and fire departments throughout the county. As we learned from our interviews, however, this model would also invite the same issues of local control and administrative difficulties. In fact, this model is less technically feasible than the other alternative because protocols for responding to calls for service vary widely across police departments. These issues should be investigated further if the city and suburban communities are interested in pursuing consolidation of all emergency communications.

Cost savings would be realized with a completely consolidated system because suburban communities would be able to significantly reduce their staffing levels. In addition, the annual fee that the suburban communities would pay to the city would be much lower than their current dispatching expenditures because the City of Milwaukee is able to provide dispatching services at a much lower average and marginal cost per call than the suburban communities. Table 3 summarizes the budgets, call volume and cost per call for all dispatching services in Milwaukee County.

Table 3
Overview of Dispatching in Milwaukee County

Community	Population	Total dispatch budget	Number of 9-1-1 calls	Cost per 9-1-1 call
Cudahy	18,323	\$468,204	21,038	\$22
Franklin	31,467	707,129	32,682	22
Greendale	14,169	443,973	<i>14,694</i>	30
Greenfield	36,000	775,000	27,747	28
Hales Corners	7,699	230,762	3,429	67
North Shore Fire Department	65,539	823,817	36,558	23
Oak Creek	30,856	844,720	<i>29,026</i>	29
St. Francis	8,755	<i>181,551</i>	8,836	21
South Milwaukee	21,374	201,200	26,000	8
Wauwatosa	46,802	666,215	39,954	17
West Allis	60,923	<i>1,283,855</i>	<i>62,481</i>	21
Suburban total or average	341,907	6,626,426	<i>302,445</i>	22
City of Milwaukee and West Milwaukee	599,394	8,578,400	1,000,000	9
With additional staff and calls		<i>9,984,800</i>	1,302,445	8
Countywide total or average (current system)	941,301	15,204,826	1,302,445	12

NOTE: Estimates are italicized.

To estimate potential cost savings, we made several assumptions. First, as indicated in Table 3, we determined the necessary increase in the city's dispatch budget and staffing levels. To be conservative, we assumed that the city would increase the number of their communications employees by 30 percent to respond to the 30 percent increase in call volume (although they might be able to handle these calls with fewer additional employees). The police department currently employs 58 dispatchers and 52 telecommunications personnel; the average annual salary and benefits per dispatcher is approximately \$46,550, while telecommunicators are paid \$41,000 in wages and benefits.⁵ If the department hired 17 additional dispatchers and 15 additional telecommunicators, expenses would increase by roughly \$1.4 million. Even with these additional expenses, the City of Milwaukee would be able to dispatch police resources at a cost of \$8 per call.

Second, because dispatchers currently perform clerical duties in most of the suburbs, we assumed that these communities would hire administrative staff under a consolidated system for our low estimate of savings. For our high estimate, we assumed that the suburban communities would shift these duties to current personnel and reduce their dispatch budgets. We estimated the salary for each clerk at \$35,000 and benefits at \$11,550 (33 percent of wages). Based on municipal population and the information gained from our surveys about the duties performed by dispatchers, we approximated how many clerical personnel would be needed. (These estimates are summarized in Appendix E.) Finally, we assumed that the suburbs would pay the City of Milwaukee a flat rate of \$8 per 9-1-1 call answered. This fee would also cover the costs of dispatching police resources. In addition to this \$8 fee per call, the suburbs would pay \$16 per fire call dispatched. The potential savings outlined in Table 4 do not reflect the cost of any necessary additional equipment.

Although Table 4 does not include any of the initial technology and capital investments necessary for a centralized dispatch center, the suburbs would likely realize annual costs savings under this plan. Furthermore, the City of Milwaukee would receive an annual payment of approximately \$2.9 million, which would exceed the estimated additional expenditures for staff (\$1.4 million). Our preliminary analysis strongly supports the possibility of cost savings under a completely consolidated dispatch center.

In addition, there are potential public safety benefits similar to those that would result from the consolidation of fire and EMS services. The primary benefits are increased capacity to respond to major catastrophes due to the availability of more dispatchers at any given moment, increased training opportunities due to more flexibility in scheduling, and better coordination of resources in a crisis. The downside is the potential loss of knowledge capital as the result of dispatch duties being performed by someone outside the community. We are unable to gauge whether this would significantly impact the quality of dispatching services to suburban communities.

⁵ At the City of Milwaukee's Police Dispatch Center, telecommunicators initially answer the call and then transfer it to the dispatcher, who sends out the necessary personnel and resources.

Table 4
Evaluation of Savings With a Centralized Police, Fire & EMS Dispatch Center:
Changes in Total Suburban Dispatch Budgets

Community	Payment to Milwaukee	Low estimate of savings		High estimate of savings	
		Change	Percent of budget	Change	Percent of budget
Cudahy	\$199,600	-\$175,500	-37.48	-\$268,600	-57.37
Franklin	301,300	-266,100	-37.63	-405,800	-57.39
Greendale	140,600	-210,300	-47.37	-303,400	-68.34
Greenfield	280,800	-354,600	-45.75	-494,200	-63.77
Hales Corner	38,800	-145,400	-63.01	-192,000	-83.20
North Shore	381,400	-442,400	-53.70	-442,400	-53.70
Oak Creek	278,800	-519,400	-61.49	-565,900	-66.99
St. Francis	84,500	-50,500	-27.82	-97,000	-53.43
South Milwaukee ^a	249,600	141,500	70.33	48,400	24.06
Wauwatosa	399,600	-266,600	-40.02	-266,600	-40.02
West Allis	597,800	-686,000	-53.43	-686,000	-53.43
Total	2,952,800	-2,975,300	-36.12	-3,673,500	-52.14

^aThe analysis shows that South Milwaukee would face an increase in their budget because they are currently under-staffed. Consequently, their present budgets understate the true expenses of their dispatch center. If they were fully staffed they would also realize cost savings with a consolidated center.

Achieving countywide support for a consolidated police, fire and EMS dispatch center might be a difficult task for the city. Several of the fire chiefs we interviewed expressed favorable views regarding the possibility of consolidating dispatch services, but some also voiced legitimate concerns about the loss of control and potential administrative issues. A primary concern was the issue of less recourse once dispatching was turned over to the city. As seen from a suburban chief's eyes, once they no longer have an operating dispatch center in their community, they have little choice but to go along with the decisions made by the city.

A second issue is the variations in operating procedures among many suburban police departments. As mentioned previously, the city's CAD system has the potential to be programmed to dispatch resources according to each community's protocols. Still, we should note that police protocols vary more dramatically across jurisdictions than do fire protocols. To make a centralized dispatch center feasible, suburban police departments might need to standardize some responses. Navigating these issues will be an important key to success for Milwaukee and the suburbs.

RECOMMENDATIONS

For a consolidated dispatch system to be appealing to suburban jurisdictions, cost savings and public safety benefits of such a system must outweigh the suburban fire departments' desire for autonomous fire and EMS dispatching. According with information provided by the suburban departments, consolidation of fire and EMS dispatch services only would not result in cost savings for suburban communities. Still, potential public safety benefits might

be attractive to suburban communities, particularly those with minimally staffed dispatch shifts. Considering the attitudes and beliefs of the chiefs in suburban fire departments, however, it seems unlikely that a centralized fire and EMS dispatch system would garner the necessary political support. This is particularly true given that the consolidation of fire and EMS dispatching would not likely save the suburbs money. In this context, we make the following recommendations:

- The City of Milwaukee should not spend political and financial capital pursuing a consolidated fire and EMS dispatch center. Given that cost savings for suburban communities is unlikely, the city would have difficulty convincing suburban departments to relinquish control.
- While the consolidation of fire and EMS dispatch alone would not likely result in cost savings for suburban communities, consolidation of police, fire and EMS dispatching probably would result in cost savings. A more detailed analysis of this alternative is outside the scope of this project; however, we recommend that the City of Milwaukee sponsor additional research to look into this option.
- We recommend the city calculate start-up costs for consolidating police, fire and EMS dispatching services for surrounding communities. A representative estimate would include additional staffing levels required to address the increase in call volume, additional hardware and software, and upgrades needed by the suburban fire and police stations and vehicles. By preparing to scale its systems to handle suburban dispatching, the city could be ready to engage in discussions with communities interested in entering a consolidated dispatching arrangement on a voluntary basis.

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- Chief David Tellock, Cudahy Police Department
- Battalion Chief Daniel Mayer, Franklin Fire Department
- Lieutenant Cindy A. Manke, Franklin Police Department
- Chief Gary Fedder, Greendale Fire Department
- Lieutenant Randy Pruss, Greendale Police Department
- Martin Freibergs, Hales Corners Fire Department
- Acting Chief Kent R. Bieganski, Hales Corners Police Department
- Lizz Martens, Hales Corners Police Department
- Deputy Chief Charlie Myers, North Shore Fire Department
- Anne Sullivan, North Shore Public Safety Dispatch Center
- Lieutenant Frank Lockwood, St. Francis Fire Department
- Assistant Chief Steven Bane, West Allis Fire Department
- JoAnn Stencel, Oak Creek Police Department
- Chief Gerard Hammernik, Oak Creek Fire Department
- Captain Brian Satula, Oak Creek Police Department
- Assistant Chief Tom Rosandich, Oak Creek Fire Department
- Chief Roland Poppy, Greenfield Fire Department
- Lieutenant Bradley Wentlandt, Greenfield Police Department
- Chief Dean Redman, Wauwatosa Fire Department
- Captain Jeff Reit, Wauwatosa Police Department

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APPENDIX A MAP OF MILWAUKEE COUNTY



SOURCE: <http://www.milwaukeecounty.org/countyMap.asp> (accessed April 28, 2004).

APPENDIX B DISPATCHING SURVEY RESPONSES

**Table B-1
Cudahy Survey Responses**

Element	Description
<i>Service area</i>	
Managing agency	Cudahy Police Department
Communities served	Cudahy
<i>Organization & staffing</i>	
Manager	1 (Lieutenant. from police)
Duties	Oversight of dispatch operations
Supervisor(s)	
Number	1 police officer per shift (also has other duties during shift)
Line staff	
Number	8
Duties	Take calls and dispatch. Have other duties such as working clerical and clerk (counter) duty
Salaries	Average: \$41,364 (includes overtime)
Training (type, length, special abilities)	Not EMD trained
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	3 shifts (8 hours each)
Deployment per shift	2 during daytime and afternoon shifts; 1 or 2 during night shift
<i>Budget</i>	
Salary and wages	\$330,914 (includes overtime)
Overtime	
Benefits	\$137,290
Operating expenses	\$22,650
Total	\$491,000 (budget figures shown are for police and fire dispatch)
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	Motorola (police use 800 MHz; fire uses VHF)
CAD/RMS (type, description, age)	Enforcer system about 4 years old
New upgrades planned in next 5 years	None planned. May upgrade down the road after consolidation with S. Milwaukee
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	9-1-1 call comes in; information taken; intercom turned on to dispatch fire

**Table B-1 (continued)
Cudahy Survey Responses**

Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Number of calls that resulted in police or fire action (informational calls not included): Fire – 1,958 Police – 19,080
How are fire alarms handled?	Come into dispatch center
Police runs (annual no.)	See above
Fire runs (annual no.)	See above
Response time (from call to dispatch; from dispatch to arrival)	Need to get from Fire Department
Fire and EMS service provision (Are private ambulances used?)	Don't use private ambulances

**Table B-2
Franklin Survey Responses**

Element	Description
<i>Service area</i>	
Managing agency	City of Franklin
Communities served	City of Franklin
<i>Organization & staffing</i>	
Manager	1 (Captain)
Duties	First person the Communication Lieutenant responds to; oversees equipment inclusive of phone systems, computer systems, radios, etc.
Supervisor(s)	
Number	1 (Communication Lieutenant)
Duties	Oversees communications inclusive of training, personnel issues, staffing, scheduling, first line supervisor for communication staff
Salaries	42,000 annual salary
Line staff	Dispatchers (full time; 2 minimum working at all times)
Number	14
Duties	Answering all calls (emergency 9-1-1 and non emergency); all radio transmissions; dispatching for police, fire, and EMS; entering officers' reports and citations; transcribing reports; taking care of walk-in complaints and citation payments; filing; and matron duty.
Salaries	Starting pay \$15.77/hour; top pay \$18.18/hour
Other staff	N.A.

Table B–2 (continued)
Franklin Survey Responses

Training (type, length, special abilities)	Dispatchers have to first pass a written test; if successfully passing the written test they are invited for a panel interview. The top performers from both the written test and interview will then have a background investigation completed. The Chief and Inspector then conduct the final interviews and will offer conditional employment based on favorable results of a medical exam. Once hired they have three months on training, one month on each shift with a CTO. They are on probation for one year from their start date. There is also state certified training that must be successfully completed. We also have ongoing training and schools.
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	We have 3 shifts. The times are 07:45–16:00; 15:46–00:00; 23:45–08:00. There is a 15-minute overlap for shift change and roll call. The rotation dispatchers' work is 5/2 5/3, which works out to 77 hours over 2 weeks.
Deployment per shift	Minimum 2 working at all times; they answer all calls (one person is not designated to a specific frequency)
<i>Budget</i>	
Salary and wages	\$449,403
Overtime	\$18,000
Benefits	\$239,726
Operating expenses	Included in police budget
Total	\$707,129
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	800 frequency (approximately 2.5 years old)
Radio consoles (type, age)	Motorola (approximately 2.5 years old)
Phones, recording equipment	CML phone system; Freedom Dictaphone recording system
CAD/RMS (type, description, age)	Enforcer CAD System
New upgrades planned in next 5 years	Only software upgrades
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	All 9-1-1 calls get a response. Our policy states even a hang-up, misdial, or child playing with the phone will be verified by sending an officer. 9-1-1 calls as with any call are answered immediately and proper personnel will be sent whether it's for police/fire or EMS. A caller will be asked to stay on the line only if they feel safe and if necessary, otherwise they are told if they don't feel safe at any time to set down the phone to leave an open line, or if there's no immediate danger or threat we can disconnect with them. A lot is that "gut" reaction.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Annual call volume for 2003—32,682 (police, fire, EMS)
Fire alarms (annual no.)	306 (2003)

Table B–2 (continued)
Franklin Survey Responses

How are fire alarms handled?	Any fire alarm has Fire Department response as well as Police Department response. The Fire Department has two types of alarms for fire: (1) a “local alarm,” which is for things like dumpster fires not near a structure, car fires where no one is in the car and the car is not near a structure, or a fire alarm called in by an alarm company with no confirmed smoke or fire etc.; (2) a “fire alarm,” which would include things like structure fires, water flow alarms, etc. The alarm gets toned out by dispatch and the fire department responds with the necessary personnel and equipment. We also have a call box: Once we determine a call needs fire or EMS response, while on the phone we press a fire page button on our phone system and it sounds a “whoop, whoop” over the PA at our 3 fire stations, and this gives them the “heads up” to the call.
Police runs (annual no.)	30,165 (all PD responses-investigations)
Fire runs (annual no.)	2,494 (includes ambulance calls of 1,773)
Response time (from call to dispatch; from dispatch to arrival)	Varies with type of call, location, and time of day, etc.
Fire and EMS service provision (Are private ambulances used?)	No private ambulances are used by the city.
<i>Geography</i>	
Number of properties	Franklin covers 34.5 square miles, has an approximate population of 32,000 growing at a rate of 1,000 per year.
Types of properties	Franklin includes residential properties, rural farms, large industrial park, a large number of condominium complexes and a growing number of elderly complexes including assisted living and nursing care. We have 3 medical buildings, and a new multi-million dollar office complex. We also have the House of Correction in Franklin; however, that is operated by the Milwaukee County Sheriff’s Department, and the only time we respond there is for rescue or problems with visitors. Franklin would probably be described as middle- to upper-middle-class environment; we do have a great deal of high-end homes in our city.

Table B–3
Greendale Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	Greendale Police Department (28 sworn officers; 10 dispatchers; 3 part-time)
Communities served	Greendale only (population 15,300); largest shopping mall in Wisconsin, Southridge, located here; plus mutual aid to surrounding agencies when needed
<i>Organization & staffing</i>	
Manager	Lieutenant Randy Pruss
Duties	Multiple duties: manage Communication Center; training; overall shift commanding officer when Sergeant is off; oversee radio, phone and recording systems, building and 14 squads for maintenance; municipal court; property bureau; evaluations; interview civilians for dispatcher positions and make recommendations to Chief, etc.
Salary	\$70,000

**Table B–3 (continued)
Greendale Survey Responses**

Supervisor(s)	No lead Dispatcher; shift supervisor is either a Sergeant or Lieutenant
Number	7 (3 Lieutenants and 4 Sergeants)
Duties	Overall shift supervisor of officers and dispatchers
Salaries	\$54,000 – \$70,000
Line staff	
Number	10 Authorized Positions (7 full-time and 3 part-time)
Duties	Dispatchers are responsible for answering 9-1-1 and nonemergency calls, dispatching calls for Police/Fire-Both ALS&BLS/EMS/DPW and clerical duties.
Salaries	Top pay for dispatcher after 3 years is \$34,257
Training (type, length, special abilities)	Training is typically 12 weeks on the job training with a senior dispatcher. In addition, the state mandates a 2-day basic and 2-day advanced time training within the first year.
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	Work 8 hour shifts with a 5/2 4/2 rotation, which results in 80 hours over 2 weeks.
Deployment per shift	2 dispatchers 8 AM – 4 PM; 2 dispatchers 4 PM – 12 AM; 1 dispatcher 12 AM – 8 AM.
<i>Budget</i>	
Salary and wages	\$271,376
Overtime	\$15,000
Benefits	\$157,597
Operating expenses	\$70,000
Total	\$508,973
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	UHF analog: infrastructure is 20 years old; mobiles/portables are 6 years old
Radio consoles (type, age)	Console type is Motorola: 6 years old
Phones, recording equipment	Dispatch console (positron analog); rest of station are Norstar Digital; recording equipment is Dictaphone Freedom, which is digital; media is DVD
CAD/RMS (type, description, age)	Enforcer technology (Unix- and Linux-based)
New upgrades planned in next 5 years	New Positron 9-1-1 system (Phase II compliant with cellular 9-1-1 and mapping); contract signed with work to begin June 2004; 800 MHz trunked analog radio system being looked at for 2005 by joining the Milwaukee County system.
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	Enhanced 9-1-1 call comes into the dispatch center screen and shows the caller's phone number and address. The dispatcher asks what is your emergency, verifies the phone number and address and sends the appropriate unit(s).
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Approximately 62,100 calls per year of which approximately 500 are 9-1-1 calls. The only differentiation in our system is a 9-1-1 call or a nonemergency call. Emergency calls can and do come in on nonemergency lines.
Fire alarms (annual no.)	10

Table B–3 (continued)
Greendale Survey Responses

How are fire alarms handled?	Usually a working fire on a structure or building. The dispatcher calls the fire department ring-down line which goes directly to the fire station, gives the information to the fire department commanding officer, who decides which apparatus to send. A police squad is also sent.
Police runs (annual no.)	A police squad is always dispatched with the Fire Department.
Fire runs (annual no.)	127 (1,045 EMS dispatches; includes both ALS and BLS)
Response time (from call to dispatch; from dispatch to arrival)	Call to dispatch, 1–2 minutes; dispatch to arrival, 3–5 minutes
Fire and EMS service provision (Are private ambulances used?)	No
<i>Geography</i>	
Number of properties	15,300 population; Largest shopping mall in Wisconsin, which attracts over 12 million people a year; residential; small business park
Types of properties	Residential; small business park; many apartment complexes

Table B–4
Greenfield Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	Greenfield Police Department
Communities served	City of Greenfield. 12 square miles. Population 36,000. Daytime population in excess of 100,000. Bordering the City of Milwaukee on the North and East.
<i>Organization & staffing</i>	
Manager	Lieutenant Bradley R. Wentlandt
Duties	Police Lieutenant. Manages a patrol shift, responsible for staffing, policy development and personnel management in the patrol division. Communications management is an additional duty; responsible for budgeting, staffing, policy development, technology etc.
Salary	\$70,500 (annual)
Supervisor(s)	
Number	**0**
Duties	Direct day-to-day supervision of the communications center staff is by the police patrol division supervisors (sergeants). There are no dedicated supervisors for the communications center. In addition to the dispatchers working in the communications center, the sergeants supervise police officers, clerks, detectives and other civilian employees.
Salaries	***Salary: \$36,000 annually ***Salary PLUS benefits: \$54,780
Line staff	
Number	12 (authorized) [11 working]
Other staff	None

Table B–4 (continued)
Greenfield Survey Responses

Training (type, length, special abilities)	Four-month in-house field training according to a standardized training program (San Jose model). TIME System training and biannual certification. Additional career development training provided on an ongoing basis
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	8.25 hours. 4 days on, 2 days off
Deployment per shift	3 scheduled (2 minimum)
<i>Budget</i>	
Salary and wages	\$450,000
Overtime	\$100,000
Benefits	\$225,000
Operating expenses	**Operating expenses and supplies are included in accounts, which are not specifically dedicated to the dispatch function. For example, paper is funded under the department “office supplies” line item. PCs are funded under the department “PCs and printers” line item.
Total	Approximately \$775,000
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	Motorola 800 MHz Trunked (New, March 2004)
Radio consoles (type, age)	Motorola Gold Elite (New, March 2004)
Phones, recording equipment	CML: 9-1-1. Centrex phone system.
CAD/RMS (type, description, age)	Enforcer technology; Linux platform; in operation 13 years (updated)
New upgrades planned in next 5 years	None
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	9-1-1 call is answered by the dispatcher. Dispatcher assesses call and dispatches police, fire or EMS resources.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	9-1-1 calls: 12,000 annually. Admin Calls: 100,000 annually Outgoing calls & transfers: 90,000 annually
Fire alarms (annual no.)	145 in 2003
How are fire alarms handled?	Alarms go to alarm monitoring company; they contact dispatch center (not 9-1-1). Counted under admin. Calls.
Police runs (annual no.)	58,000 (includes calls for service & police stops)
Fire runs (annual no.)	3,200
Fire and EMS service provision (Are private ambulances used?)	Greenfield Fire responds to all fire and EMS calls. Private ambulances are never used. The Greenfield Fire Department provides all EMS services. Off duty firefighters are called in to staff the fire station if other ambulances are on calls.

**Table B–4 (continued)
Greenfield Survey Responses**

<i>Geography</i>	
Number of properties	10,600
Types of properties	10,050 residential; 550 business/commercial

**Table B–5
Hales Corners Survey Responses**

Element	Description
<i>Service area</i>	
Managing agency	Hales Corners Police Department
Communities served	Hales Corners
<i>Organization & staffing</i>	
Manager	Communications is managed by a lieutenant who also has numerous other duties and is assisted by a lead dispatcher.
Line staff	
Number	7 total: 1 lead dispatcher, 2 full-time dispatcher/clerks, 4 part-time dispatchers
Duties	Dispatchers handle all police, fire, and EMS calls; answer 911 and nonemergency calls; complete data entry; enter and handle citations; handle the dispatch window; take payments for citations; open records, copies, tax bills, kennel fees, etc. Dispatchers are also responsible for taking money, charge payments, and balancing the money drawer. Dispatchers also do clerical work, confidential typing for the Chief, warrant entry, validations, Uniform Crime Reports, fingerprint cards/arrest report completion, filing, logs, false alarm billings, assist with scheduling procedures, assist the Court Clerk when needed, and other duties as assigned.
Salaries	Lead dispatcher: \$34,756/year Dispatcher clerk: \$34,195/year Part-time dispatchers: \$12.52–14.68/hour *Employees who work 2 nd or 3 rd shift receive a shift differential of \$0.20 per hour.
Training (type, length, special abilities)	Each dispatcher has in-house training and is TIME system advanced certified. Full-time dispatcher/clerks also serve as warrant entry/validations officers and complete the Uniform Crime Report.
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	The 3 shifts run 12:00 AM – 8:00 AM, 8:00 AM – 4:00 PM, and 4:00 PM – 12:00 AM. This department has 3 full-time dispatchers who work Monday through Friday, permanently assigned to one shift. The hours on the weekends are covered by the 4 part-time dispatchers, who work rotating schedules (one weekend 12–8 AM, one weekend 8–4 PM, one weekend 4–12 AM, one weekend off). The part-time dispatchers also cover for full-time vacations, sick leave, funeral leave, personal time, etc.
Deployment per shift	1 dispatcher on duty per shift
<i>Budget</i>	
Total	\$230,762 (2003 budget)

Table B–5 (continued)
Hales Corners Survey Responses

<i>Radios, consoles and other systems</i>	
Radio consoles (type, age)	Motorola Base and Motorola Portables
Phones, recording equipment	Lucent Technologies phones in building; no recording equipment
CAD/RMS (type, description, age)	None
New upgrades planned in next 5 years	Potential of switching to 800 MHz radio system

<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	Dispatcher answers the 9-1-1 call, gathers information and sends appropriate response.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	2002 calls for service, 2,720; fire call volume should be retrieved from the Fire Department
How are fire alarms handled?	Dispatcher takes information, sends out tones to alert pagers for paid on-call Fire Department personnel to respond, sends police squads
Police calls (annual no.)	2,720
Fire calls (annual no.)	2002: 157 (plus 564 EMS) 2003: 158 (635 EMS)

<i>Geography</i>	
Number of properties	2,086 residential properties
Types of properties	Single-family structures (1,971); 2-unit structures (102); 4-unit structures (5); 3-unit structures (1)

Table B–6
North Shore Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	North Shore Dispatch
Communities served	Glendale, Whitefish Bay and Shorewood Police Department, North Shore Fire Department

<i>Organization & staffing</i>	
Manager	Director
Duties	Manage dispatch center, hire, discipline, train, report to Commission
Salary	50,000
Supervisor(s)	
Number	1
Duties	Assist Director, day-to-day operations, computer maintenance
Salaries	41,100

Table B–6 (continued)
North Shore Survey Responses

Line staff	
Number	18
Duties	Dispatch police and fire, answer 9-1-1 and other phone calls
Salaries	\$13.37 – \$17.99 after 4 years
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	4 on, 2 off, 8-hour days
Deployment per shift	8 AM – MIDNIGHT (3 personnel); MIDNIGHT to 8 AM (2 personnel)
<i>Budget</i>	
Salary and wages	\$556,445
Overtime	\$25,000
Benefits	\$242,372
Operating expenses	\$263,163
Total	\$1,086,980
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	UHF 20+ years, looking to upgrade to 800 for police this year
Radio consoles (type, age)	Motorola Centracom – Series II, 12 years
Phones, recording equipment	Village uses a Centrex system, Dictaphone Freedom – DVD for recording
CAD/RMS (type, description, age)	Spillman Technology – 1 year, CAD and RMS
New upgrades planned in next 5 years	9-1-1 – Phase II, Radio to 800 for police, fire will remain with UHF
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	If called from Whitefish Bay, Glendale or Shorewood answered directly here
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	36,558
Fire runs (annual no.)	5,558 (includes EMS)
Response time (from call to dispatch; from dispatch to arrival)	N.A.
Fire and EMS service provision (Are private ambulances used?)	Private only used for PI accidents or during training
<i>Geography</i>	
Types of properties	Residential, commercial and industrial

**Table B–7
Oak Creek Survey Responses**

Element	Description
<i>Service area</i>	
Managing agency	Oak Creek Police Department
Communities served	Oak Creek
<i>Organization & staffing</i>	
Manager	One manager; equal rank of police lieutenant, but non-sworn
Duties	All operations of the dispatch center. This position previously was responsible for our clerical personnel also. This was changed as of late 2003 due to our dispatch center assuming responsibilities of police and fire dispatching. We started fire dispatching January 2004.
Salary	\$68,094 (salary as of January 1, 2003)
Supervisor(s)	We are currently working with our personnel committee on approval for a supervisor position. This position has been approved, but all details have not been settled yet. The position will be filled from our current staffing. This will not increase the number of line staff.
Number	1 (position approved but not yet filled)
Duties	Work second shift hours (3:30 PM – 11:30 PM). Position will be a working dispatch position to supplement busy times. During down times, the supervisor will be assigned to review dispatchers' logs, assist with shift and training scheduling, monitor dispatching on their shift, assist manager with other administrative duties in operation of the dispatch center.
Salaries	Still being negotiated. (We are looking in the area of \$46,000–\$50,000.)
Line staff	
Number	14 (currently at 13). We have 13 full-time dispatchers. When the supervisor position above is staffed, the position will come from one of our 13 full-time dispatchers.
Duties	Dispatching for police, fire and EMS. Some clerical work. [Can you please specify what percent of their time is spent on this?] The clerical work referred to is very minimal. We have one dispatcher who enters parking tickets and mails notices accordingly for them. This takes approximately 5% of her 40-hour week. Another dispatcher mails notices for failing to comply with 15-day equipment defect tickets. This takes less than 5% of her 40-hour week. However, our dispatchers do have dispatch responsibilities that would only fall on the dispatch center, such as warrant entries and validation of Time System entries. All dispatchers share the duties of warrant entries, which are done 2 days per month. The validation responsibilities are shared by three dispatchers, 1 on each shift. There is a monthly validation mailed and each of these dispatchers spends about 16 hours per month on this.
Salaries	\$38,081 per year as of July 1, 2004
Other staff	None
Training (type, length, special abilities)	Our training program is on-the-job-training with a dispatcher rotating between shifts and trainers for a 3-month period. We include ride-alongs with our police officers during this time. All dispatchers are also required to be certified for the Time System, which is a two-part course. Our dispatcher hiring process also includes a written test (which covers map reading, general math and English and situational questions which require prioritizing), a typing test, a dispatcher simulator test (includes multi-tasking, voice enunciation and copying/relaying information), and two interviews.

Table B-7 (continued)
Oak Creek Survey Responses

<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	7:30 AM – 3:30 PM; 3:30 PM – 1:30 PM; 11:30 PM – 7:30 AM. Dispatchers work an 8-hour shift with a 5/2 4/2 rotation.
Deployment per shift	Shift 1: max 4, min 2; Shift 2: max 4, min 3; Shift 3: max 4, min 2. For Shift 2 (3:30 PM – 11:30 PM), had max 5 and min 3.
<i>Budget</i>	
Salary and wages	\$563,147 per year. This includes the manager's salary and 13 dispatchers' salaries. Due to the supervisor position not being settled, this is not included.
Overtime	This figure is not separate from other police employees and cannot be calculated.
Benefits	\$281,573.50 per year. This is based off approximately 50% of the manager's salary and 13 dispatchers' salaries.
Operating expenses	This figure is not separate from the Police Department's full budget and cannot be calculated.
Total	\$844,720.50 (salary and benefits only)
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	Police: 800 MHz trunking system; Fire: VHF Highband Simplex (Age?) The 800 MHz system is approximately 2 years old. Unknown for the Fire system.
Radio consoles (type, age)	Police: Motorola Centracom Gold Elite; Fire: ? The Fire Department does not have a radio console. The police console was installed in July 2003.
Phones, recording equipment	Fire: Dispatchers initiate entering data, finish it with Fire House. The manual phone system is a Nortel Networks system that the entire city uses. This system is a backup for dispatchers only. The dispatcher's primary phone system is a Positron computerized phone system. This system was put in place in August 2003. The recording system is a Dictaphone Freedom system that was installed October 2000.
CAD/RMS (type, description, age)	CAD for police services only ?; looking into CAD system that will include Fire and EMS (have Homeland Security grant for this). The CAD/RMS system is through Enforcer Technology. We purchased the system in 1992. It is an older CAD and record system that is not Windows based.
New upgrades planned in next 5 years	New CAD system. The grant for the new CAD system is currently being worked on. We are unsure if we will receive grant funding, but it is our hope that even if we don't we can somehow switch to a new CAD system over the next few years.
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	Call goes to dispatch center. All 9-1-1 calls, with the exception of wireless 9-1-1 calls, are received by the dispatch center. Dispatchers are all training to take police, fire and EMS calls. There are not dedicated call-takers and dispatchers. They all perform dual functions. The wireless 9-1-1 calls are currently received at the Sheriff's Department.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Fire and EMS: 2,826 (2002); 2,911 (2003)
How are fire alarms handled?	Dispatchers provide a still alarm response (this is an engine and ambulance) for fire alarms, with the exception of one business in our city, which is a hazardous material site. This response is based off of an alarm company report only. If we receive calls from citizens, the response may be different based upon information received.

Table B–7 (continued)
Oak Creek Survey Responses

Response time (from call to dispatch; from dispatch to arrival)	The response time for police calls for service will always vary based upon the type of call. However, all of our calls are responded to immediately upon availability of personnel.
Fire and EMS service provision (Are private ambulances used?)	Don't use private ambulances unless there is a mass casualty

Table B–8
St. Francis Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	City of St. Francis
Communities served	City of St. Francis
<i>Organization & staffing</i>	
Line staff	
Number	4 full time; 4 part time
Duties	Call taking and dispatch
Salaries	
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	1 person on: 8-hour shifts (8 – 4; 4 – 12; 12 – 8)
Deployment per shift	1 person
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	Calls come into dispatcher (shared with police). When fire and EMS, dispatcher turns on speaker in firehouse to alert fire. Information taken and radioed out to house and/or truck.
Fire and EMS service provision (Are private ambulances used?)	ALS handled by county. Privates are not typically used.

Table B–9
South Milwaukee Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	South Milwaukee Police Department
Communities served	South Milwaukee
<i>Organization & staffing</i>	
Manager	Police Chief
Supervisor(s)	Police Captain

Table B–9 (continued)
South Milwaukee Survey Responses

Line staff	
Number	4 full time; 2 part time; currently short a full-time person
Duties	Call taking and dispatch. Dispatchers also do other duties such as clerical, license checks, entering citations and mug shots.
Salaries	See total below
Training (type, length, special abilities)	No special training
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	Three 8-hour shifts
Deployment per shift	Typically two dispatchers during day shift and one on each of the other shifts. Being understaffed currently, they have only one dispatcher on duty at a time.
<i>Budget</i>	
Salary and wages	197,000 includes benefits (6.09% of total for Police Department)
Overtime	\$4,200 (6% of \$69,000 for the Police Department total)
Benefits	Included in salary above
Operating expenses	\$2,400 (6% of \$40,000 for the Police Department total)
Total	\$203,600
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	800 trunk system for police; fire uses VHF
Radio consoles (type, age)	Enforcer (1998 was last upgrade). They have two consoles with capacity to add a third.
New upgrades planned in next 5 years	No. Down the road they are merging the communication center with Caduhy, but no infrastructure improvements are planned at this time.
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	Call comes in. If it's for fire, speaker is turned on for stations to hear. Station decides what equipment and resources to deploy.
Police and Fire combined?	Yes
Any cost savings from consolidation of Police and Fire?	N.A. They have always been combined.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Yes
Police runs (annual no.)	Approximately 23,400

Table B–9 (continued)
South Milwaukee Survey Responses

Fire and EMS runs (annual no.)	Approximately 2,600
Response time (from call to dispatch; from dispatch to arrival)	Did not have statistics. Roughly 5 minutes per call on average. No time needed for follow-up activities because information is entered directly into the system.
Total time on each call	
Time spent on follow up activities	

Table B–10
Wauwatosa Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	Wauwatosa Police Department
Communities served	Wauwatosa
<i>Organization & staffing</i>	
Manager	Communications is managed by a lieutenant who is also responsible for other administrative duties.
Duties	15% time devoted to dispatch supervision
Salary	\$72,000
Supervisor(s)	Each patrol shift commander has direct functional control over the dispatchers on the shift.
Number	3 patrol shift commanders
Line staff	
Number	9 full-time dispatchers; 5 part-time dispatchers
Duties	Communicators are responsible for the operation of the communications center including answering phones, dispatching calls and handling the administrative duties resulting from these activities.
Additional duties	The communicators have no significant responsibilities that extend beyond those normally associated with the operations of a dispatch center.
Salaries	\$38,000 – \$40,000
Training (type, length, special abilities)	Loosely structured FTO style program for new dispatchers; Wisconsin TIME system training
<i>Scheduling and deployment</i>	
Shift schedule (length of shifts, rotations)	Work 8.4-hour shifts with a 4/2 rotation, which results in 80 hours over 2 weeks.
Deployment per shift	3 shifts: 2 positions (1 PD, 1 Fire)
<i>Budget</i>	
Salary and wages	\$405,000
Overtime	Overtime, holiday and FLSA pay: \$37,250
Benefits	Add 55.3% to salary for fringe benefit package

Table B–10 (continued)
Wauwatosa Survey Responses

<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	800 MHz trunked analog; the radio system is 5 years old
Radio consoles (type, age)	Consoles are Motorola Centricom Gold and are 10+ years old.
Phones, recording equipment	SBC Positron phone system. The recording equipment is digital onto audio CDs, Dictaphone
CAD/RMS (type, description, age)	In 1998 we installed a D M Data ' s CPLIMS CAD/RMS system.
Other computer systems	NCIC, TIME (Wis. system) and other local systems.
New upgrades planned in next 5 years	Possible console upgrade to a Watson or Xybix system.
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	The dispatcher answers all 9-1-1 calls, determines if it is police or fire, gets the information necessary to dispatch the call and finally sends the appropriate unit.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Total Police and Fire: 39,954
Police runs (annual no.)	34,954
Fire runs (annual no.)	5,000
Response time (from call to dispatch; from dispatch to arrival)	Police: 3 minutes Fire: 4 minutes
Fire and EMS service provision (Are private ambulances used?)	No
<i>Geography</i>	
Types of properties	Mostly residential; light industrial; largest retail mall in the state

Table B–11
City of Milwaukee Survey Responses

Element	Description
<i>Service area</i>	
Managing agency	City of Milwaukee
Communities served	City of Milwaukee, West Milwaukee

Table B–11 (continued)
City of Milwaukee Survey Responses

Organization & staffing

Manager	One Chief Dispatcher oversees fire and EMS dispatching services
Duties	Primary duty is to administer the activities of the Communications Section, and assume responsibility for prompt receipt and dispatch of Fire Department forces. Secondary duty is to supervise the communications section. Duties include the management of staffing, maintenance of discipline, establishment and monitoring of section and department policies, coordination of training sessions, plus the maintenance of high standards of performance for personnel, equipment, and work place.
Salary	\$76,905 (2004 budget); SR: \$76,905 (PR 863 \$63,327–\$76,905 @ 2003 rates of pay)
Supervisor(s)	Deputy Chief of Technical Services
Number	5
Duties	Primary duty is the supervision of the receipt of emergency, nonemergency and interdepartmental calls via telephone, land line, and radio and the prompt dispatch of the proper units or agencies to the scene of fire, medical or any other emergency incident. In the absence of the Chief Dispatcher, he or she is in command of the operations of the communication section and the communications personnel under his or her direct command. This job position is responsible for all the day-to-day activities of the communication section. Duty includes the maintenance of discipline; submission of personnel qualification reports; assigning details; periodic review of “Call-Taking” and dispatching procedures, and the maintenance of reports and records.
Salaries	Approximately \$53,760 (2004 budget); SR: \$282,406 total (PR 04 \$40,589–\$56,825 @ 2004 rates of pay)
Line staff	
Number	21
Duties	Receive and process incoming calls and promptly dispatch the proper units. Provide for the operation of the Fire Department’s Computer-Aided Dispatch System and Enhanced 9-1-1 system. Respond to request for manpower or equipment for officers or supervisors in the field; and ascertain that such needs are complied with. Provide pre-arrival instructions, enter information into CAD system; computer dispatches fire and EMS services. [Other duties? Will all staff be call takers under the new system?] Yes.
Salaries	Approximately \$36,455 (2004 budget); SR: \$765,557 total (PR 858 \$31,541–\$42,090 @ 2002 rates of pay)
Other staff	? Other people dedicated to support of dispatch system?
Number	The staff from the Bureau of Technical Services. 1 Captain, 2 Lieutenants, 1 Firefighter, 1 secretary, and 1 civilian position (network specialist)
Duties	Consult with Chief Dillard (414-286-8941) (E-mail jdilla@milfire.com)
Salaries	Consult with Chief Dillard (414-286-8941) (E-mail jdilla@milfire.com)
Training (type, length, special abilities)	Trained to give pre-arrival instructions. Length of training (4 hours); First responder Training (40 hours)

Scheduling and deployment

Shift schedule (length of shifts, rotations)	Three 8-hour shifts (7:30 AM – 3:30 PM) (3:30 PM – 11:30 PM) (11:30 PM – 07:30 AM). The dispatchers and supervisors work a 4/2 5/2 schedule.
Deployment per shift	7 dispatchers are assigned to each of the 3 shifts (1–2 dispatcher, per shift, are schedule off on each of the 3 shifts).

Table B–11 (continued)
City of Milwaukee Survey Responses

<i>Budget</i>	
Salary and wages	\$1,111,260; SR: \$1,124,868
Overtime	SR: \$25,000 (estimate)
Benefits	SR: \$356,460 (31% of salaries—estimate)
Operating expenses	SR: \$136,775 (estimate based on 3-year average)
Total	SR: \$1,643,103
<i>Radios, consoles and other systems</i>	
Radio system (frequency & age)	New System (Orbinom system) 700–800 trunking
Radio consoles (type, age)	Software driven
Phones, recording equipment	Software driven by Intrado (Palladium DPS 2000 ACD System)
CAD/RMS (type, description, age)	Software vender by P.E.C. Solutions Inc. (New CAD System)
New upgrades planned in next 5 years	Yes: AVL System, Record Management System, Instillation of Mobile Data Terminals, and a Staffing Module. All components are expected to be completed by the end of 2004.
<i>9-1-1 calls</i>	
Logistics: What happens? How are calls handled?	Call initially goes to police. [Do they enter information into CAD? If so, is this electronically transmitted to fire dispatcher?] They transfer call to fire dispatching if necessary but they stay on the line to dispatch police car if needed; fire call taker/dispatcher enters information into CAD and the computer dispatches out appropriate help; call taker offers pre-arrival instructions if necessary.
Annual call volume (past 5 years). Can calls be identified as police, fire or EMS?	Total 9-1-1 in 2003: 1 million Fire in 2003: 94,000. [Does this include calls made by private companies who monitor fire alarms?] Fire in 2002: 89,958
Police runs (annual no.)	Not necessary
Fire runs (annual no.)	20,000–25,000 fire type runs a year (electrical trouble, water leak, special team responses, fires, etc.)
Response time (from call to dispatch; from dispatch to arrival)	Call-taking time is approximately 30–45 seconds. Dispatch time is approximately 10–15 seconds. Response time average 3.5 to 4.5 minutes.
Fire and EMS service provision (Are private ambulances used?)	Private ambulances used for non life-threatening injuries. Private ambulances are from the private sector and are privately owned. There are 4 private ambulance providers that service the City of Milwaukee.
<i>Geography</i>	
Number of properties	?
Types of properties	?

APPENDIX C

WIRELESS 9-1-1 CALLS

A separate issue related to regional consolidation is deciding which agency within Milwaukee County will handle cellular 9-1-1 calls. Currently, emergency calls from wireless phones are initially routed to the Milwaukee County dispatch center.⁶ The county determines, based on information from the caller, which municipality should respond and then forwards the call to the appropriate municipal dispatch center. Federal regulations have recently been updated and now require that each county, by 2005, have the necessary technology in place to identify the location of wireless callers. Given the significant investment by the City of Milwaukee in the new communications center, moving cellular 9-1-1 dispatching to the City of Milwaukee might have potential benefits for public safety and could result in cost savings for the taxpayers of the city and the county. A complete analysis of such a consolidation is beyond the scope of this report, so this section is presented simply as a discussion. We have included this section because the issue of deciding which agency handles cellular 9-1-1 calls is linked to the overall issue of consolidation of dispatch services.

Proponents of moving cellular 9-1-1 dispatching to the city (primary individuals aligned with the city) cite several reasons for doing so. First, upgrading the county dispatch center would be more costly than enabling the city dispatch center to route calls to the appropriate municipality. Second, the city would be in a better position to meet the 2005 deadline included in the federal regulations. Third, the City of Milwaukee would only need a modest increase in the scale of its dispatch operations to handle this function, thereby eliminating a redundant service provided by the county and ultimately saving city and county taxpayer money. Finally, they argue that most of the calls that come into the county are for emergencies located within the City of Milwaukee, and having the calls come into the city dispatch center would reduce a step in transferring the calls.

Opponents, primarily individuals aligned with the county, claim that enabling the city to communicate with surrounding suburbs would be more costly than anticipated. However, if the city takes on the responsibility of providing dispatch services for the surrounding communities, this linkage would not need to be established because the city would already be providing the dispatch instructions. Other technical issues would need to be resolved such as establishing a system for routing calls to the county sheriff, or other situations such as alarms in county buildings, currently handled by the county.

Further analysis should verify the cost savings and technical feasibility of the city providing this service as well as looking into alternative funding sources such as federal, state and private sector dollars devoted to upgrading the cellular locator systems.

⁶ The county dispatch center also handles non-emergency and administrative lines and coordinates a response to more than 20,000 alarms on county property.

APPENDIX D RADIO FREQUENCY, BY COMMUNITY

Community	Fire radio frequency	Age	Changes planned
City of Cudahy	VHF		Police use 800 MHz
City of Franklin	800 MHz	2.5 years	None
Village of Greendale	UHF	20 years	Considering 800 MHz
City of Greenfield	800 MHz	Less than 1 year	None
Village of Hales Corners	VHF	15–20 years	Considering 800 MHz
North Shore Dispatch Center	UHF	20 years	Considering 800 MHz for police
City of Oak Creek	VHF		Police use 800 MHz
City of St. Francis	VHF		
City of South Milwaukee	VHF		
City of Wauwatosa	800 MHz	5 years	None
City of West Allis	800 MHz		

APPENDIX E COST ESTIMATES (FIRE AND EMS DISPATCH CONSOLIDATION)

Estimating Suburban Dispatch Budgets

We were unable to obtain budgetary information from some of the suburban departments. To estimate their budgets, we found the per capita cost of each of the communities that provided us with budget information. We did not include the operating expenses in the budget totals because estimating accurate operating expenses was difficult for some departments, and departments also defined operating expenses in different ways. We found that, on average, \$21 was spent per person on dispatching services. We then multiplied that number by the populations of St. Francis and West Allis to approximate their dispatching budgets (see Table E-1).

**Table E-1
Overview of Dispatch Budgets**

	Population	Police, fire and EMS dispatch budget
Cudahy	18,323	\$468,204
Franklin	31,467	707,129
Greendale	14,169	443,973
Greenfield	36,000	775,000
Hales Corners	7,699	230,762
North Shore Fire Department	65,539	823,817
Oak Creek	30,856	844,720
St. Francis	8,755	<i>181,551</i>
South Milwaukee	21,374	201,200
Wauwatosa	46,802	666,215
West Allis	60,923	<i>1,283,855</i>
City of Milwaukee and West Milwaukee	599,394	8,572,983
Total	941,301	15,199,409

NOTE: Estimates are italicized.

Estimating Suburban Savings From Reduced Responsibilities

Low estimates

Low estimates were calculated by multiplying the annual number of calls for fire and EMS services by the average amount of time spent dispatching the call (5 minutes). This amount of time was derived from interviews with the dispatch supervisors and chiefs. We then calculated the total number of minutes spent per year on fire and EMS dispatching and

divided the result by the total number of minutes in a year to estimate the proportion of time each dispatch department spends on fire and EMS calls. This proportion was applied to the total wages paid to dispatch staff to approximate the value of reduced responsibility. Of course this number does not reflect any actual accounting expense but rather represents the value of staff being less pressured and better equipped to perform other duties efficiently.

High estimates

High estimates were calculated using the same methods outlined above, although a higher estimate was used for the average amount of time spent dispatching fire and EMS calls (10 minutes).

Estimating Call Volume

To calculate potential cost savings, we used the fire and EMS call volume for each community. As a proxy for call volume, we used the number of fire and EMS runs. Because we did not have complete data from all jurisdictions, we estimated the volume for some by calculating the average number of fire and EMS runs per capita (.0999, based on those communities with full data). To approximate both fire and EMS call volume, we multiplied this average per capita number by the population in each community with missing data. We used the same approach for estimating total 9-1-1 calls (police, fire and EMS) for communities with missing data (average number of calls per capita is 1.02). The results of these calculations are presented in Table E-2.

Table E-2
9-1-1 Call Volume in Milwaukee County

	Population	Total Fire and EMS calls	Total 9-1-1 calls
Cudahy	18,323	1,958	21,038
Franklin	31,467	2,494	32,682
Greendale	14,169	1,172	<i>14,694</i>
Greenfield	36,000	3,674	27,747
Hales Corners	7,699	709	2,720
North Shore Fire Department	65,539	5,558	36,558
Oak Creek	30,856	2,911	29,026
St. Francis	8,755	866	8,836
South Milwaukee	21,374	2,600	26,000
Wauwatosa	46,802	5,000	39,954
West Allis	60,923	<i>6,122</i>	<i>62,481</i>
Suburban Total	341,907	<i>33,064</i>	<i>301,736</i>
City of Milwaukee and West Milwaukee	599,394	94,000	1,000,000
Countywide Total	941,301	<i>127,064</i>	<i>1,301,736</i>

NOTE: Estimates are italicized.

GIS Mapping Costs

The Department of Public Works of Milwaukee County is currently mapping out the suburban communities, and they plan to share this information with the City of Milwaukee. Kevin White of the Department of Public Works expects to have the system mapped out by June 2005, but this is a roughly estimated date. He plans to add routing features to the system, which would allow dispatchers and firefighters to identify potential road impedances (e.g., obstacles, closures).

This project is funded through the Milwaukee County Automated Mapping and Land Information System, which receives a portion of the recording fees collected by the State of Wisconsin. Once the suburban areas are mapped out, the data can be converted so that it can be assimilated into the Fire Department's CAD system. According to Kevin White, this process should take less than a day. Thus, additional resources will not be needed to incorporate the suburbs into the new GIS system.

Estimating Additional Work Hours for Milwaukee Dispatchers

We divided the annual Fire and EMS call volume by 365 to estimate the number of calls received per day and multiplied this number by 8 minutes to estimate the total amount of time spent daily on calls. We then divided this number by the number of shifts (3) and the average number of dispatchers on duty per shift (5) to determine how much time each dispatcher spends handling calls during his or her shift. We followed this same process to determine the amount of additional time needed to handle the expected increase in call volume (33,332 calls) under a centralized system. Our results are summarized in Table E-3.

Table E-3
Estimated Staff Times for Milwaukee

	Current system	Additional calls	Combined
Annual call volume	94,000	33,332	127,332
Current calls per day	258	91	349
Calls per shift	86	30	116
Time spent on calls per shift, per call-taker (hours)	1.79	0.63	2.42

Estimating Clerical Staff Costs With Complete Consolidation

As mentioned previously, most of the suburban departments would need to hire clerical staff if all dispatch positions were eliminated. In some communities, dispatchers do not have additional duties, so we assumed they would not have to hire administrative staff. We estimated the salary for each clerk at \$35,000 and benefits at \$11,550 (33 percent of wages) and based the number of necessary staff on the population. Our estimates are summarized in the Table E-4.

**Table E-4
Clerical Staffing Costs**

	Population	Number of clerical staff	Total expenses
Cudahy	18,323	2	\$93,100
Franklin	31,467	3	139,650
Greendale	14,169	2	93,100
Greenfield	36,000	3	139,650
Hales Corners	7,699	1	46,550
North Shore Fire Department	65,539	0	0
Oak Creek	30,856	1	46,550
St. Francis	8,755	1	46,550
South Milwaukee	21,374	2	93,100
Wauwatosa	46,802	0	0
West Allis	60,923	0	0

The Forest for the Trees

An Analysis of the City of Milwaukee's Funding of Street Trees

Rochelle Mallett, Clare Mamerow, Cory Stinebrink

EXECUTIVE SUMMARY

Milwaukee, the country's seventeenth largest city, maintains an urban forest comprised of 200,000 street trees. The Forestry Section of the Operations Division in the Department of Public Works is responsible for these trees and spends about \$11.7 million per year on the urban forestry program. The city recognizes the value of the current program yet wishes to reduce its reliance on property tax revenue. Based on our analysis of alternatives to the status quo, we believe the city of Milwaukee should continue to rely on its Forestry Section for tree maintenance but begin charging property owners a flat fee of \$36 per year and charge for out-of-cycle pruning requests.

The Forestry Section provides, plants and maintains street trees throughout the city. The trees are harvested at a city-owned tree farm and planted based on a series of guidelines set by the Forestry Section. Property owners are responsible for watering the trees after they are planted but the city provides all additional maintenance. Currently the city prunes street trees on a 5-year cycle and accepts about 10,000 requests for out-of-cycle tree pruning per year.

For this analysis, we examined three policy options for funding Milwaukee's urban forestry program. The first is the status quo: continue to fund the program through property tax revenue. Second, we looked at three variations of user fees (a flat fee, a fee per tree, and an out-of-cycle pruning request fee). The third funding option would require property owners to pay for and provide tree care. Included in this last scheme is the option for the city to negotiate a contract for tree care with a private provider. Property owners could then choose to use the negotiated provider or prune the trees themselves. We also briefly discuss the possibility of obtaining funding from the state forestry tax. We analyzed each policy option based on Milwaukee's goals: (1) reduce reliance on property tax revenue, (2) maintain a healthy urban forest, (3) assure that the financing scheme will not place undue hardship on the poor, (4) minimize administrative costs, and (5) pursue an option that is politically feasible.

Based on our formal analysis, we recommend the city charge each property owner a flat fee of \$36 per year and institute a user fee for out-of-cycle pruning requests (which could save the city up to \$400,000 per year). The combination of these two alternatives—a flat fee and a fee for out-of-cycle pruning requests—would best meet the city's goals. Finally, we note a significant gap in data on the public and private benefits of Milwaukee's urban forest. We recommend the city research and quantify these benefits.

INTRODUCTION

Visitors to Milwaukee often comment how green the city is. In addition to Milwaukee's many factories, the city has numerous parks, green spaces, and mile upon mile of tree-lined streets. In fact, Milwaukee has 200,000 trees growing in the green spaces between the streets and the sidewalks. These trees are part of the city's urban forest, commonly defined as "the aggregate of all vegetation and green spaces within communities that provide benefits vital to enriching the quality of life" (Center for Urban Forest Research, 2004).

The city provides the street trees and prunes them every five years. In 2003, about \$11.7 million was appropriated from general property tax revenue into the forestry program for operating and capital costs. As Milwaukee's budget tightens, however, the city is looking for ways to decrease its reliance on property taxes and has requested an analysis of other means of funding Milwaukee's forestry program.

We analyzed three urban forestry management and funding alternatives.

1. *Status quo*. The city would continue to provide the trees, and city staff would maintain the urban forest. Funding for the program would come from property tax revenue.
2. *User fees*. City residents would pay for tree pruning.
3. *Maintenance by residents*. Residents would be solely responsible for maintenance of the urban forest between their property and the street.

In addition, we will examine whether tapping revenue from the state forestry tax would be a viable means of funding Milwaukee's urban forest.

In this analysis we will judge each alternative using five criteria based on goals set by the City of Milwaukee.

1. Would the funding alternative reduce the city's reliance on property taxes to fund urban forest expenses?
2. Would its payment structure lead to a progressive distribution of tree care costs?
3. Would it maintain the health of the urban forest?
4. Could it be accomplished with administrative ease?
5. Would it be politically feasible?

BACKGROUND

The city provides an average of 1.2 street trees for every home in Milwaukee. The number of street trees per housing unit depends on the location and size of the property. Additional trees may be provided to a property on a corner lot or for a particularly large property. The trees are grown at the Municipal Nursery in Franklin and are transplanted to the strips of grass between the sidewalks and the streets. City employees plant the trees, stake them (if necessary), water them, and place mulch around the base to protect the roots. Once the trees

are planted, the city relies on the residents of adjacent properties to water the newly planted trees and maintain the mulched area around the base.

The forestry program has developed guidelines to determine where trees can be planted within the street strip. Although the forestry program takes into account symmetry, balance and other aesthetic concerns, it must also consider minimum planting distances from objects such as traffic signs, driveways, corners, light and telephone poles, and underground utilities. If a sign, pole, or other feature is installed after a tree has been planted, the city does not move or remove the tree but prunes the tree for clearance and visibility.

Although residents are expected to mow the grass on the city-owned strip between the sidewalk and the street, they are not expected to prune the trees on those same strips. Nor are they required to pay for those pruning costs directly. Instead, tree maintenance costs are paid using general property tax revenue.

The forestry program has divided the city into 160-acre management units, or quarter sections, and uses these sections to determine the trees' regular pruning cycles. Trees are pruned to provide clearance for pedestrians and street traffic in public right-of-way areas. Trees are also pruned to ensure that streetlights, signs and signals are visible and utility lines are unhindered. Branches that are dead, broken or weak are removed to prevent personal injury and property damage.

Tree health is another consideration in tree pruning. A well-pruned tree looks better, is healthier, safer, will better resist storm damage, and will ultimately live longer. The forestry program's pruning guidelines promote a strong, single trunk with balanced branch structure. A lack of good, regular pruning (especially when the tree is young) can cause the tree to form multiple or split trunks, which are more likely to break during storms. The city also strives to promote good branch structure, which increases the tree's life expectancy and allows for less maintenance pruning in the future. The branches from the pruned and downed trees are chipped and made into mulch, which is used around the bases of newly planted trees. The mulch is also available to city residents free of charge.

Although the city has a set pruning schedule to prune each tree every 5 years, if a tree presents the potential for problems between pruning times, the forestry program will prune the tree to ensure citizen and property safety as well as tree health. The city also responds to citizen requests for tree care.

The forestry program operates within the Operations Division of the Department of Public Works and views the forest as an important part of the city's infrastructure. It strives to provide the trees with ongoing care that includes and follows a comprehensive plan for forestry health. Rather than focus on the needs of each individual tree, the forestry program maintains the health of the entire urban forest. For instance, the forestry section ensures that there are a variety of different tree species throughout the city to avoid widespread epidemics such as Dutch Elm disease.

Maintaining the urban forest provides both public and private benefits. For example, cleaner air is a benefit realized by all Milwaukee residents. Increased property value is a private

benefit for property owners with a tree near their property. If the benefits were solely public, then public funding of the urban forest would be the clear choice among the funding alternatives. Likewise, if an urban forest only provided private benefits, then it should be maintained with private funds. Because the urban forest provides both public and private benefits, both sectors must be considered when recommending a funding scheme.

Benefits of Milwaukee’s Urban Forest

Milwaukee’s urban forest provides economic, social and environmental benefits to the city (Urban Ecological Analysis for Milwaukee, Wisconsin, 1996). Less water runoff reaches the sewer systems and saves Milwaukee money by reducing the need to build more complex sewage and storm water systems. Trees absorb and use nutrients such as nitrogen, phosphorus, and potassium, all of which are pollutants created by urban living (“Trees Help Cities Meet Clean Water Regulations,” 2000).

Trees can also control energy costs. During the summer, a tree provides shade and relief from the heat of direct sunlight. A beautiful neighborhood with an abundance of trees is more likely to draw residents outside (“Trees Help Cities Meet Clean Water Regulations,” 2000). While all of these benefits would continue for many years if funding for the urban forest ceased, the city has articulated an interest in maintaining the current benefits received from the urban forest.

Costs Associated with Milwaukee’s Urban Forest

The costs associated with the urban forestry program include a tree farm, tree maintenance, and ongoing employment of staff and administration. The forestry program’s budget represents about 2 percent of the city’s budget, as shown in Table 1. Over the past 5 years, the forestry program’s portion of the city’s budget has increased only three-tenths of a percentage point. Although the percentage of the city’s budget devoted to the forestry program is relatively small, the forestry program budget has increased at a rate greater than inflation.

Table 1
Forestry Program Expenditures (in Real Dollars)

Year	Forestry program annual budget (operating and capital funds)	City of Milwaukee annual budget (operating and capital funds)	Share of budget devoted to forestry (percent)
1999	\$9,528,793	\$593,007,063	1.61
2000	9,667,224	596,259,223	1.62
2001	10,954,533	588,427,849	1.86
2002	9,853,861	563,701,292	1.75
2003	11,626,824	607,468,532	1.91
2004	11,659,043	606,280,791	1.92

NOTE: The consumer price index was used to calculate 2004 real dollars.

SOURCE: City of Milwaukee Budget Office.

Of the roughly \$11.7 million budgeted for the forestry program in 2004, approximately \$10.4 million is the forestry program's operating budget, which is used to pay for the pruning, additional care, and removal of trees. The remaining \$1.3 million are capital expenditures to pay for trees and maintenance equipment.

GOALS

This analysis will determine whether the current funding system for the urban forestry program best achieves the city's goals:

1. *Reduce the city's reliance on the property tax.* Currently, general revenues from property taxes fund the urban forestry program. The city wishes to reduce its reliance on property tax revenues to fund city services, including the urban forestry program.
2. *Maintain a healthy urban forest.* It is important to determine how each alternative will affect the health, well being, and aesthetic appeal of the urban forest.
3. *Assure that the financing scheme will not place undue hardship on low-income residents.* Milwaukee residents have a range of incomes. The city does not want to adopt a financing scheme that will cause undue hardship on residents with lower incomes.
4. *Minimize the costs associated with administering the urban forestry program.* While any financing scheme will have some administrative costs, the city would like to minimize these costs.
5. *Adopt a financing scheme that is politically feasible.* Any funding recommendation should be viable within the constructs of local politics.

ALTERNATIVES TO THE STATUS QUO

Milwaukee is examining other program alternatives to maintain the city's healthy urban forest while reducing the burden on property tax funds. Below we analyze two major program alternatives: (1) user fees for tree maintenance and (2) city ordinances requiring residents to perform tree care. In addition to these alternatives we will discuss the possibility of obtaining funds from the state forestry tax.

Optimally any funding scheme would take into account the public and private benefits of the urban forest. Yet Milwaukee has not quantified either. For example, the city claims that trees reduce runoff yet neither the city nor the sewage district have gathered data on the money saved in Milwaukee due to decreased runoff. In order to analyze this first alternative, we assumed that public and private benefits are equal. We have no data to suggest that this is in fact true but made the assumption in order to provide a useful analysis.

Two policy alternatives are not considered in this analysis: tree pruning performed by utility companies, and city contracts with private companies to provide tree care. When utility companies are responsible for the pruning and general maintenance of street trees, they often over-prune to reduce costs associated with regular pruning. Therefore, the city has determined that the goal of having a healthy urban forest will not be met if tree pruning

responsibilities are left to utility companies. Although municipal duties throughout the country are increasingly privatized, the city is unwilling to consider such an alternative at this time.

User Fees

Milwaukee has implemented user fees for a number of services such as snow and ice removal and provision of sewage removal and treatment services. These fees are collected from homeowners and businesses. They are also collected from tax-exempt property owners such as non-profit organizations and churches, who own about 14 percent of the city's assessed property value. Milwaukee could use fees to raise revenue for the urban forestry program.

The city has several options for assessing user fees. We explored the three most likely fee systems: a flat fee, a fee based on the number of street trees on a particular property, and a fee assessed for out-of-cycle pruning requests.

Based on our assumption that the public and private benefits of Milwaukee's urban forest are equal, we assume that 50 percent of the forestry program's budget should come from the user fee, and 50 percent should be funded by property tax revenue. Therefore, throughout our analysis of user fees, we calculated fees to cover exactly half of the forestry program's annual budget (\$5.85 million).

Flat fee

A flat fee could be levied for every property owner in the city. This would require all property owners to pay the same amount for tree services regardless of the number of trees or care required. To cover half of the forestry program's expenditures, the fee would need to be set at \$36 per parcel of land (\$5.85 million forestry budget/164,010 privately owned parcels).

Fee per tree

The city could assess, roughly, a \$29 per tree maintenance fee (\$5.85 million forestry budget/200,000 street trees).¹ This figure would cover the entire forestry budget, including salaries and overhead. Since the average number of trees on a property is about 1.2, the average property owner would pay \$35. However, this calculation assumes that the property owner would be assessed the fee every year, regardless of whether the tree is pruned or not. To have the fee cover the entire forestry budget, but only be assessed those years when the property owner's tree is pruned, the fee would need to be about \$145/tree since each tree is pruned every five years. Property owners may prefer to be billed only in the year that their tree is pruned because they see immediate results for the money spent. In addition, billing once every five years would lower administrative costs. This \$145 figure includes such expenses as pruning, other tree maintenance, staff salaries, and overhead.

¹ This \$29 fee would cover the entire forestry budget. If the City wanted to charge for half of pruning costs only, the fee would be about \$20. According to Forestry Services Manager, Robert A. McFadyen the cost of pruning one tree, in cycle, is \$40. This figure seems low. Assuming one-fifth of the trees are pruned each year (because the City is on a five-year pruning cycle), then pruning costs should be $\$40 \times 40,000 = \1.6 million. We assume the \$40 is only the direct cost of pruning.

User fee for out-of-cycle pruning requests

A user fee for out-of-cycle pruning requests presents another opportunity to assess fees to finance a portion of the forestry program's annual budget. The city receives about 10,000 requests per year. The forestry program honors these requests free of charge. While a scheduled tree pruning costs the city \$40, a special request for pruning costs twice as much or \$80.²

The forestry program was not able to provide the number of out-of-cycle requests that are actually pruned. We know that the forestry program responds to every request by sending a supervisor to the site but not every request results in pruning. To proceed with the analysis, we assumed that half of the requests result in pruning. This would cost the forestry program about \$400,000 per year for out-of-cycle pruning. Rather than provide this service free of charge, the city could charge residents \$80 to respond to their pruning requests. While this user fee would not cover all of the costs, it would provide relief to the current budget.

Private Funding Mandated Through Ordinances

Another funding option for the maintenance of Milwaukee's urban forest is to place the responsibility for tree care on the property owners. Unlike the user fee option, in which the property owners would pay the city a fee to care for the trees, the private care option would require property owners to care for the trees themselves or hire a private company to prune their street trees.

This alternative is similar to the city's current snow removal system. Although the sidewalks are city property, property owners are responsible for clearing snow from the walkways during the winter. Owners can remove snow themselves, or they can hire a private service to do so. The property owners' requirement is stated in a city ordinance, which gives the city the authority to fine property owners who do not perform the necessary snow removal.

There are, however, striking differences between snow removal and tree care. Good tree pruning requires knowledge of arboriculture. Most Milwaukee residents are unlikely to have the appropriate expertise in forestry to maintain the same high level of tree health as the city currently maintains. Additionally, tree pruning is dangerous and expensive. Some property owners would attempt to prune the trees themselves, which could lead to injuries and property damage when property owners fall from trees, suffer cuts, or miscalculate where a cut branch will fall. Other property owners will opt to hire a pruning service, at significant personal cost. Both groups—those who prune the trees themselves and those who hire a service—are likely to minimize their personal inconvenience and cost by pruning as infrequently as possible. This could lead to overgrown, poorly maintained trees, or to trees that are over-pruned so that the next pruning is as far in the future as possible. Finally, some property owners will ignore the new tree-pruning ordinance entirely, leading to overgrown

² The \$80 figure is from Forestry Services Manager, Robert A. McFadyen. Based on our prior analysis in the per tree fee section, we believe that the \$80 figure is only the direct cost of out-of-cycle pruning. We were unable to determine the full cost of out-of-cycle prunings because the Forestry Program was not able to give us the number of trees that are actually pruned out-of-cycle each year.

trees that could impede visibility of signs and traffic lights, as well as pose a danger from falling branches.

Milwaukee, in order to maintain a healthy urban forest, could pursue a contract with a private provider. The city would negotiate a contract with a private landscaper who would then provide tree maintenance throughout the city. In this case the homeowner would have the option of either using the city recommended provider or finding another provider. City ordinances would still provide maintenance guidelines, such as optimal pruning.

State Funding Through the State Forestation Tax

The State of Wisconsin levies an annual tax on all property at a rate of \$0.20 per \$1,000 of value (or two-tenths of one mill per dollar) for the purpose of acquiring, preserving and developing state forests (Wis. Stat. 70.58). Milwaukee's urban forestry program does not receive any of the resulting revenue. Wisconsin Statute 25.29 states that 12 percent of the revenue, approximately \$7.5 million, shall be used to acquire and develop forests within densely populated counties, including Milwaukee County (Wis. Stat. 25.29 [7] [a] and [b]). Although the Department of Natural Resources (DNR) allocates funds to support the forests in these counties, most of the revenue supports DNR programs and staff (Rideout, 2004).

Although these funds might benefit Milwaukee residents, they do not directly support the city's urban forestry program. There are two ways the city could receive forestry mill tax revenues: (1) an allocation from the DNR, or (2) a legislatively mandated appropriation added to the biennial budget. The city has approached the legislature to request a legislatively mandated appropriation to Milwaukee's urban forest in the past but the request was denied.

ANALYSIS

In this analysis, we compare the user fee and private care funding alternatives to the status quo alternative.

Goal 1: Reduce Reliance on Property Tax Revenue

Compared to the status quo, all other funding schemes reduce reliance on the property tax. A flat or per-tree user fee could be set at a rate high enough to completely fund the forestry program, eliminating reliance on property tax revenue. In this report we calculated the fees so that only half of the forestry program's budget would be covered, thereby reducing but not eliminating the city's reliance on property tax revenue. The private care option would shift tree care from the city to private residents, and property tax revenue would no longer be used to fund forestry activities. If the city adopted the pruning request fee, it would still be reliant on property taxes for the majority of the division's costs. Based on our assumption and calculations, the pruning request fee would provide a cost savings of up to \$400,000.

Goal 2: Maintain a Healthy Urban Forest

The flat and per tree user fees would provide the same level of funding as the status quo. With the same budget, the forestry program would provide the level of forest care needed to maintain the current healthy urban forest. Similarly, tree care would remain adequate with an out-of-cycle request fee. This fee would not negatively affect funding of maintenance activities. Private tree care, however, could result in a reduction of maintenance activities because private residents might try to reduce costs by not providing tree care as often, which might lead to a less healthy urban forest. Additionally, the quality of tree maintenance might suffer under private care because most property owners are not trained in tree care. In addition to prescribing appropriate tree maintenance in city ordinances, the city could negotiate a price with private tree care providers. Property owners could decide to prune the tree themselves, hire the provider recommended by the city, or hire another tree care specialist. The private care option does not ensure the maintenance of a healthy urban forest.

Goal 3: Avoid Undue Hardship for Low-Income Residents

User fees and private care could place undue hardship on low-income residents. Although many of these residents do not own property, the fee would likely be passed on to them through higher rent costs. We are unable to calculate the impact of a user fee on renters because it would depend on the elasticity of the housing market.

If the user fee results in a property tax levy reduction, lower-value property owners will pay the same user fee as the higher-value property owners but will realize less of a property tax savings. Thus, the distributional impact of a user fee would not be even.

Out-of-cycle pruning requests are not mandatory. Residents could avoid the fee by not requesting an out-of-cycle pruning. The private care option could shield low-income residents from the costs of tree care by giving them the option to do their own pruning. However, such costs as equipment and labor are still associated with pruning.

Goal 4: Minimize Administrative Costs

The city spent roughly \$7 million on a billing system for user fees. Forestry user fees could be added to the fees already listed on residents' water bill. If a significant amount of data were needed to calculate the forestry fee, the city might need additional staff time.³ A flat user fee would not vary and would therefore not require additional data processing. The per-tree user fee, however, would require staff to determine how many trees were on each property and vary the fee accordingly. This would add administrative costs. The out-of-cycle request fee would only require that the forestry program report on requests made. Because the fee would require no calculations, administrative costs would be minimal. City officials would need to enforce the new ordinance (just as they do the current snow removal ordinance), which is likely to add administrative costs. Costs would also increase if the city negotiated a price with a private tree care provider.

³ The Budget Office reports that an existing intern would take on the additional work, alleviating the need for the City to hire a new employee.

Goal 5: Adopt a Politically Feasible Financing Scheme

The Budget Office believes that user fees could be politically feasible because they enable the city to increase the revenue base by charging tax-exempt properties. Property owners might not like user fees, though, because they cannot be itemized on federal tax returns. Unlike user fees, property taxes can be deducted from federal taxes, reducing the federal tax owed. In addition, residents might become upset if they were charged for a service they had always considered “free.” The out-of-cycle pruning request fee could face the greatest opposition from aldermen who have used out-of-cycle pruning as a means of building goodwill with their constituents. Finally, property owners might not accept the private care option because it would require them to perform tasks previously handled by the city.

RECOMMENDATIONS

Based on our analysis of how the three major funding schemes would meet the city’s five goals, the city should institute a flat user fee and an out-of-cycle pruning request fee. The burden of the flat fee would not be evenly distributed, possibly causing hardship for some low-income residents. Many of Milwaukee’s low-income residents rent multi-family housing units. We are unsure whether owners of these units would absorb the flat fee or pass it on to their tenants. Even if the fee were passed on to the tenants, it would be distributed among multiple renters. The flat fee meets all other stated goals. The second part of our recommendation, an out-of-cycle pruning request fee, could provide up to \$400,000 in cost savings, which would lead to reduced reliance on property tax revenue.

In addition, we recommend that the city attempt to quantify the public and private benefits of the urban forest. For example, if the city can measure the benefits received by the sewer district from decreased water runoff, it could charge the sewage district for these services. The same could be done for utility companies who rely on the city to prune trees away from utility lines.

Additional research could also help the city make a strong case for using funds from the state forestry mill tax to fund urban forestry. At this point, we do not fully understand the political barriers to a legislative appropriation of this tax but the city should explore this possibility.

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