



# A Strategic Fiscal and Management Plan for the City of Memphis, FY2015-FY2019

*Prepared for the City of Memphis*

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# Introduction and Overview

## Introduction

Like other local governments, Memphis faces a series of challenges that is the result of both structural and cyclical issues. The combination of growing costs of compensation and stagnant or declining revenue is not unique to Memphis. Many of these problems have developed over a series of years – in some cases, decades. In the face of these challenges, the traditional approach to budgeting that looks at problems and solutions one year at a time is inadequate to meet the goal of fiscal sustainability.

The Government Finance Officers Association (GFOA) has recognized that multi-year financial plans are a best practice. A multi-year plan provides “a comprehensive and systematic management tool designed to help organizations assess the current environment, anticipate and respond appropriately to changes in the environment, envision the future, increase effectiveness, develop commitment to the organization’s mission and achieve consensus on strategies and objectives for achieving that mission.” The GFOA also suggests that “all governmental entities use some form of strategic planning to provide a long-term perspective for service delivery and budgeting, thus establishing logical links between authorized spending and broad organizational goals.”<sup>1</sup>

City leadership – Mayor Wharton and members of the City Council – have been clear that they seek more than just a plan to balance budgets. After all, a balanced budget is necessary – but it does not guarantee that a city will meet the larger goals of economic prosperity and overall quality of life. Thus, the City sought a long term fiscal plan that set a course for fiscal sustainability that would also complement and promote other efforts to achieve larger policy goals that were also being pursued by City government.

It is also important to understand that the development of a multi-year financial plan is not a static process. Plans are not one-time reports or studies. Instead, the intent of a multi-year financial planning process is for the City to regularly update and adjust the plan as assumptions, goals and strategies change.

In March 2012, the City of Memphis engaged Public Financial Management, Inc. (PFM) and a team of local sub-consultants – Rick Masson Consulting, V. Lynn Evans, CPA and Community Capital, LLC – to work with the City in developing a multi-year strategic fiscal and management plan.<sup>2</sup>

During the course of the development of the plan, City leadership recognized that it was essential to involve both civic and business leaders in the process and to clearly establish ownership of the plan and its recommended initiatives by division directors and others within City government who would be charged with its implementation. In late 2012, the Mayor appointed a 10-member Executive Committee to work with and advise on the plan and its contents. Six subcommittees – including administration officials, members of the City Council and business and civic leaders – were convened to focus on the issues of Public Safety, Compensation and Benefits, High Performing Government, Strategic Investments, Economic Development and Revenue Enhancement.

The development of the multi-year financial plan coincided with the development of the City’s FY2014 budget. A draft of this plan was developed in February 2013. To avoid the risk of confusion between the two processes, the City decided to temporarily suspend development of the multi-year financial plan

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<sup>1</sup> Recommended Budget Practice on the Establishment of Strategic Plans (2005). Government Finance Officers Association.

<sup>2</sup> Throughout the document, the PFM team is referred to simply as PFM.

process until completion of the FY2014 budget. Upon completion of the FY2014 budget, the City resumed development of the multi-year financial plan.

The delay had the significant benefit of ensuring that the five year plan reflected the most up-to-date assumptions related to the City's revenue and expenditures as a baseline for forecasts – including steps taken by the City to close projected budget gaps in FY2014. It also allowed the City to increase public input into the plan. In March, the Mayor and members of the Council conducted public meetings on the plan in every Council district. In November, the City commissioned a detailed survey of residents' opinions on the budget.

With a new baseline – based on the adopted FY2014 budget – and the benefit of significant public input, in Summer and Fall 2013, Mayor Wharton and other leaders within the Administration revisited the analysis and recommendations outlined in the draft February 2013 plan and designated a series of high impact initiatives as priorities for adoption and implementation. These priorities include:

- Pension and OPEB Reforms
- Cost savings/efficiency measures for public safety
- Development of a Growth Plan embracing major City projects
- Create a grants office (to seek grants, not merely manage grants)
- Centralize Revenue Collection and Revenue Strategy Development, including hiring a Revenue Officer
- Review all fines, fees and collections in order to increase revenues
- Review all capital projects (including annual CIP and ad hoc projects through a common analytical and policy framework)
- Conduct debt burden and capacity analysis and restructure debt where appropriate
- Implement key performance indicators (KPIs) throughout City government
- Complete conversion to zero based budgeting
- Immediate review of public safety operations in light of zero based budgeting
- Consolidate back office functions and dispatching for Fire and Police Divisions
- Create Financial Advisory Board
- Review joint service opportunities with Shelby County, MHA, MLGW and others
- Implement 311 throughout City government with accompanying performance management component
- Full implementation of Comptroller's mandates with respect to rebuilding reserves and debt service funds
- Define core services for Police, Fire and Solid Waste
- Increase false alarm fees
- Complete facilities and space study
- Develop a strategic plan for parks and golf courses
- Develop and implement the "Blueprint for Prosperity" program

- Review all PILOTs and PILOT policy so as to create a more efficient, effective and equitable system of generating revenue while promoting growth in sectors of the local economy
- Review policies of car allowances, fleet management (across all divisions and fund) and reduce the total fleet (in particular the number of take home cars)
- Find alternatives to EMS/emergency room transports
- Review all employee benefits including the DROP program, holidays and establishing a sick leave pool/bank.

Based on these priorities, PFM worked to re-draft this financial plan to highlight those initiatives that best aligned with these high-impact and high priority areas.<sup>3</sup>

As noted above, multi-year financial plans require regular review and updates. As a result, this plan – like all such plans – is a work in progress. The analysis within clearly describes the fiscal challenges facing Memphis. It prescribes a series of initiatives – really a series of choices – for how the City can best meet those challenges while still pursuing the goals of quality of life and economic prosperity.

We expect that from now until the presentation and adoption of the FY2015 budget in April there will be substantial debate and discussion as to the choices that will be made this year and into the future. While this is the starting point for discussion, the plan ultimately adopted and incorporated into the FY2015 budget may differ from this document. Some initiatives may be rejected in favor of others, and ultimately, the plan will be just that – a plan subject to regular updates, review and monitoring.

Still, in developing a five year plan that looks honestly at the challenges and opportunities before it, Memphis takes an important step toward creating the foundation of good governance needed to address the larger issues that affect quality of life in Memphis.

## **Fiscal Sustainability and the Road to Economic Prosperity**

Fiscal sustainability and economic prosperity are inextricably linked. For cities to be economically competitive, they require strong, functional local governments to support conditions essential to economic growth. In the mid-2000s, the Center for Excellence in Government commissioned a series of surveys of city residents across the United States that asked what factors were most important to economic development. One factor was consistently among the most highly rated – effective local government that is free of corruption. In fact, effective local government was ranked as more important than low taxes in several cities.

At the same time, economic development is critical to fiscal sustainability. No local government can consistently provide quality public service and maintain balanced budgets in the face of economic stagnation or decline. While local government has an obligation to act as an effective steward of taxpayer dollars, it is usually not possible to rely solely upon efficiency, increased revenue rates or collection as a means of balancing budgets for long periods of time. Eventually, the combination of declining service and ever increasing tax rates will drive businesses and residents to leave.

Thus, local governments cannot choose efficiency over revenue collection or revenue collection over growth – they must simultaneously maximize the efficient operation of government, collect enough revenue to maintain quality of life and make strategic investments to grow the tax base.

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<sup>3</sup> As a result, for each area of review, the Plan contains an analysis of current conditions – the analysis used in the February 2013 draft plan -- and continues with those initiatives that best align with the high impact areas. Other proposed initiatives that were part of the February 2013 draft plan are contained in an appendix.

Today's fiscal challenge to the City of Memphis reflects declines in its property tax base due to reassessment, growing costs related to employee health care and pension costs and the need to provide adequate investments in infrastructure. Together, these factors drive projected deficits during the coming five years. Over the long term, Memphis must also carefully weigh the appropriate levels of staff dedicated to public safety. On a per capita basis, Memphis has had more police officers and more firefighters than benchmark jurisdictions and these two divisions – Police and Fire – drive the City's overall budget. Thus, fiscal sustainability will require changes in worker compensation and benefits, the funding of debt and staffing in the police and fire departments.

Memphis faces an economic challenge as well. At the regional level, between 2002 and 2011, Memphis lost nearly 18,000 jobs. Over the last fifty years, the City's population has grown at less than one-third the rate of growth of the rest of Shelby County and the state as a whole, and a significant percentage of population growth has come only through annexation.

Memphis has a lower per capita income and higher poverty rate than other Tennessee cities. Both are directly attributable to the relatively low rate of education attainment among its residents. As of 2010, 22.5 percent of Memphians had a college degree – compared to 28 percent nationally and 22.9 percent statewide. Lower educational attainment leads to lower income and higher poverty.

Economic prosperity will require increased opportunity – through education and employment – for all Memphians and the ability to retain and attract residents with the skills needed to compete in a 21<sup>st</sup> Century workplace.

## Changing the City's Business Model

During the next five years, Memphis must take steps to change the way that it does business in order to achieve short term fiscal balance and sustainable long term growth. If nothing else, this plan seeks to drive a discussion and debate over just what services the City of Memphis should provide – and how these services should be provided – over the next five years. **Ultimately, Memphis needs to pay for the government that it chooses to provide.**

In Memphis, there is frequent discussion about “core services,” which are generally defined to include public safety (police and fire), sanitation and maintenance of infrastructure. These services are viewed as the basics. Still, there is wide recognition that investments in neighborhood quality of life through amenities such as parks and libraries, as well as code enforcement, and economic development are as important as core services in achieving the “city of choice” sought by City leaders. Even though the City is no longer directly involved in the funding of public education, City leaders also clearly recognize that investments in youth development and school readiness are critical to growing educational attainment that is essential for economic competitiveness.

There are some lines of business that the City might be able to leave altogether. However, the reality is that a City government that just focuses on a limited number of core services may achieve some level of short term fiscal sustainability, but will be hard pressed to meet the complementary goal of economic growth necessary to long-term fiscal sustainability.

Clearly though, not all services need to be provided at the same level. A financial plan – like all budget documents – is ultimately about choices. A local government must provide policing, but it can choose what types of services its police agency will provide and the level of effort in providing them. For example, not all police agencies provide a police officer in response to every call, and not every call is responded to with the same level of priority. These choices about level of service can drive financial impact.

Moreover, level of service need not be uniform across an entire city. Some parts of a city may demand higher levels of service than others. Equal distribution of every service provided by a local government is not necessarily equitable.

Finally, there are choices to be made about how a service is provided. Some services currently provided by sworn police officers might alternatively be provided by civilians. Some services provided by City employees might be provided as well, and at a lower cost, by the private sector – just as some services currently privatized might be provided more efficiently through reverse privatization.

Thus, what service is provided, the level at which it is provided and the method by which it is provided are all choices that go to the business model of local government.

It is clear, however, that whatever choices are made regarding the services to be provided, local government must pay for the full cost of providing those services. Often, local governments seek to avoid difficult choices by deferring costs or relying on non-recurring revenues. This “kick the can down the road” approach defines an unsustainable approach to local government finance.

## A Different Approach

In offering choices to redefine the City’s business model, this draft plan attempts to present a different approach to thinking about the way that the City of Memphis operates and delivers services.

The best measure of efficiency and effectiveness is meeting desired outcomes at the lowest possible cost. Outputs are more important than inputs, but outcomes are far more important than both. Utilization – whether measured by the number of people going to libraries or riding MATA – is more important than capacity – the number of hours a library is open or whether a bus route is served. Reducing the number of crimes or the number of fires in a city is more important than how that outcome is achieved. As a result, a “prevention first” approach is often more important than a focus solely on response.

The recommended initiatives in this draft plan focus on this outcome based approach in several ways:

- In the area of public safety, we recommend a series of steps designed to maximize the productivity of both the Fire and Police Divisions that would allow them to provide current service levels – and, more importantly, achieve improved outcomes – at a lower cost. And, in the case of both divisions, we recommend a greater focus on prevention, whether by reducing the likelihood of crime, preventing fires or reducing demand for EMS services through early intervention.
- Across City government, we recommend initiatives designed to focus more on aligning service level with actual demand. In other words, we believe that City government can be both more efficient and effective by being more customer-focused. At the same time, we believe that changes in how services are delivered can maintain service quality while reducing cost.
- Many of our recommendations focus on reducing the cost of service delivery by reforming compensation and benefits for City employees. These reforms are not designed to punish City employees, nor are they designed to limit the ability of local government to attract and retain a qualified workforce. The City, however, can change total compensation for its workers in a way that is consistent with norms in the private sector and in other local governments and reduce service cost.
- We recommend that investments in physical capital need to be more strategic. A focus on outcomes – or return on investment – will allow for better use of limited resources. Moreover, we identify important opportunities for greater coordination and collaboration.

- While the City should take every step possible to maximize efficiency first, we recognize that to balance budgets in the short term the City may require additional revenue beyond what is likely to be generated by economic growth. We recommend a series of steps to improve collection of existing revenues as well as to develop new revenue sources.



# Public Safety

## Overview

In FY2013, the Memphis Police Division (MPD) and the Memphis Fire Division (MFD) accounted for 60.3 percent of the total General Fund budget (36.6 percent – MPD; 23.7 percent MFD). Public safety's proportional share of the budget would account for an even greater share of the General Fund budget if indirect costs were allocated proportionally (e.g. IS, HR, Finance, City Attorney, etc.).

As detailed in prior chapters, MPD and MFD – combined – account for nearly 79 percent of the City's total General Fund FTEs and 81 percent of the City's total General Fund spending on personnel. Additionally, the average General Fund cost per public safety FTE was approximately 20 percent greater than that of non-public safety FTEs (without accounting for additional overtime-related earning potential for public safety employees). MPD and MFD FTEs account for approximately two-thirds of all vested participants in the City's Pension Fund – a source of significant challenge for the City's budget. As of 2012, the City was funding less than one-third of its pension ARC. Thus, to the extent that the City is only funding less than one-third of its pension ARC, it is underfunding the pension system by an amount attributable to the police and fire divisions (approximately two-thirds of all vested FTEs) – an unsustainable and unaffordable course of action.

MPD and MFD are the driving forces in the City's General Fund personnel expenditures. Given the City's budget challenges, it is necessary that the City find new and more efficient ways to provide public safety services to its residents, businesses, and visitors. The current model is cost-prohibitive and there are opportunities to both improve and enhance services while reducing the burden on taxpayers.

This chapter provides an overview of the MPD and MFD, their respective responsibilities, organizations and operations, initiatives to enhance each of the Divisions and reduce their operational costs.

## Police

Memphis Police Division (MPD) is responsible for the delivery of police services across the City's 315.1 square miles and for its 646,889 citizens – in addition to visitors and commuters who travel through the City.<sup>39</sup> The Department's mission statement summarizes its duties in broad terms:

*To create and maintain public safety in the City of Memphis with focused attention on preventing and reducing crime, enforcing the law and apprehending criminals.*

In addition to patrol services, the MPD also performs investigative services, administrative services and special operations (e.g. bomb unit, tactical unit, canine unit, traffic unit, organized crime unit, etc.). The MPD operates its own training academy which trains and prepares recruits for service as police officers. Fleet maintenance for the police vehicles is performed by the City's Division of General Services. The City's Information Services (IS) Division is generally responsible for technical support and technology maintenance, though the MPD does have its own IS team that focuses on criminal justice data and reporting. In calendar year 2012, the MPD received 1,637,200 total calls (748,629 911 emergency calls and 888,571 non-emergency calls) and dispatched officers to 932,584 assignments.

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<sup>39</sup> US Census Bureau 2010 Census data.

## MPD High-Level Table of Organization



The MPD's FY2013 budget included an authorized complement level of 3,032 FTEs.<sup>40</sup> As of July 2012, the Division had 2,978 FTEs. The table below shows the historical sworn and civilian FTEs in MPD.

### Police Sworn and Civilian FTEs – FY2005-FY2012

	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	% Change
Sworn	2,147	2,024	2,018	2,385	2,273	2,444	2,550	2,550	18.8%
Civilian	598	578	667	483	482	447	478	478	-20.1%
<b>Total</b>	<b>2,745</b>	<b>2,602</b>	<b>2,685</b>	<b>2,868</b>	<b>2,755</b>	<b>2,891</b>	<b>3,028</b>	<b>3,028</b>	<b>10.3%</b>

Source: City of Memphis 2012 CAFR

On a calendar year basis, the FBI's Uniform Crime Report (UCR) captures police employee data for state and local jurisdictions across the country.<sup>41</sup> Data for calendar year (CY) 2005 through 2011 are available from the UCR. This data is generally a "point in time" representation of staffing as of each October. As a result of the timing of data collection by the UCR, Fiscal Year data shown above align most generally with the prior calendar year (i.e. because UCR data for 2005 represents October 2005 data, the Fiscal Year covering October 2005 is Fiscal Year 2006 – the City's Fiscal Year runs July 1 – June 30 of every year).

The following table shows a comparison between the two "point in time" data sets. As the table shows, there are notable variances in the two data sets – this is to be expected given the different data collection times and the inevitable personnel changes (i.e. new recruit class, retirements, etc.) that occur in an organization the size of the MPD. However, several trends emerge in both data sets. First, the number of sworn FTEs has increased by approximately 25 percent since FY2006 (CY2005). Second, the number of civilians has decreased by a similarly significant rate (ranging from approximately 40 percent smaller in UCR data to approximately 20 percent smaller in City data). Third, as a result of the first two trends, the overall staffing level of the MPD increased and generally less expensive civilian positions were eliminated or held vacant while generally more expensive sworn positions were added to the MPD's complement.

<sup>40</sup> Data received from the City as of July 2012 show 3,164 authorized positions in MPD. The difference primarily appears to be attributable to the level of authorized Training Academy FTEs. The FY2013 budget shows an authorized level of 123 FTEs, data received from the City's Finance Division shows an authorized level of 256.

<sup>41</sup> This data is generally a "point in time" representation of staffing as of each October. Data for 2012 are not yet available.

### Fiscal Year versus Calendar Year Staffing Data – City CAFR Data and FBI UCR Data

CAFR	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	% Changed
CAFR Sworn	2,024	2,018	2,385	2,273	2,444	2,550	2,550	26.0%
CAFR Civilian	578	667	483	482	447	478	478	-17.3%
CAFR Total	<b>2,602</b>	<b>2,685</b>	<b>2,868</b>	<b>2,755</b>	<b>2,891</b>	<b>3,028</b>	<b>3,028</b>	<b>16.4%</b>
UCR	CY2005	CY2006	CY2007	CY2008	CY2009	CY2010	CY2011	% Change
UCR Sworn	1,975	1,990	2,056	2,098	2,202	2,335	2,454	24.3%
UCR Civilian	682	450	473	425	522	440	401	-41.2%
UCR Total	<b>2,657</b>	<b>2,440</b>	<b>2,529</b>	<b>2,523</b>	<b>2,724</b>	<b>2,775</b>	<b>2,855</b>	<b>7.5%</b>

As a result of an increase in sworn officers and a decrease in the number of civilians, many civilian functions – particularly administrative in nature – became the responsibility of sworn personnel. Rather than these sworn personnel being assigned to proactive policing, responding to calls or other higher-priority jobs for sworn personnel, an increasing number of MPD’s sworn employees became, in essence, more expensive versions of civilians. To the extent the City increased the number of sworn FTEs, but also increased the number of sworn FTEs performing civilian functions, the net result was an operational wash (no increased benefit of police presence or patrol) and a more expensive staff.

#### Budget

From FY2008 to FY2013, the Division’s budget has increased by 22.7 percent. The primary factor in this increase was personnel services growth of 21.2 percent. A smaller factor was materials and supplies growth of 20.2 percent.

#### Police Division FY2008–FY2013 Budgets

Budget Category	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
	Actual	Actual	Actual	Actual	Actual	Budget
Personnel Services	\$172,146,485	\$186,420,983	\$192,781,231	\$205,871,312	\$199,058,866	\$208,608,582
Materials and Supplies	\$20,746,903	\$19,402,058	\$19,543,925	\$18,880,797	\$18,993,647	\$24,945,326
Capital Outlay	\$130,338	\$502,881	\$166,293	\$0	\$2,704	\$0
Transfers Out	\$457,761	\$4,575,636	\$2,151,350	\$2,707,825	\$3,375,217	\$3,762,824
Grants and Subsidies	\$0	\$0	\$0	\$69	\$0	\$0
<b>TOTAL</b>	<b>\$193,481,488</b>	<b>\$210,901,558</b>	<b>\$214,642,799</b>	<b>\$227,460,003</b>	<b>\$221,430,435</b>	<b>\$237,316,732</b>

Salaries, health care benefits, pension benefits, overtime costs, educational incentive expenses, longevity costs, holiday pay and taxes are included within the Personnel Services category.<sup>42</sup> Expenditures on Materials and Supplies, such as fuel from the City’s General Services Division, shop charges (also to the City’s General Services Division), rent, clothing, outside IS, technology and communications support, and utilities account for 10.5 percent of the MPD budget. The remaining 1.6 percent of expenditures is attributable to debt service payments made from the MPD budget.

The MPD’s budget, much like that of the City, is driven by personnel expenditures, which averaged 89.5 percent of all MPD costs in the Division’s FY2008-FY2012 budgets. According to data for FY2013, the

<sup>42</sup> Primary non-salary compensation expenditures, such as those just listed, are discussed in the Compensation and Benefits chapter of this report.

average “fully loaded” cost per police FTE (including both civilian and sworn) is \$64,397. Sworn personnel account for 88.6 percent of total salary expenses for the Division, have an average salary of \$52,110 and cost on average an additional \$14,419 in benefits/taxes, which yields an average fully-loaded cost of \$66,529 per sworn FTE. Civilian FTEs account for 11.4 percent of total salary expenses for the Division, have an average salary of \$40,959 and cost on average an additional \$10,370 in benefits/taxes, which yields an average fully-loaded cost of \$51,329 per civilian FTE.

### Average Cost Difference – Sworn FTE vs. Civilian FTE

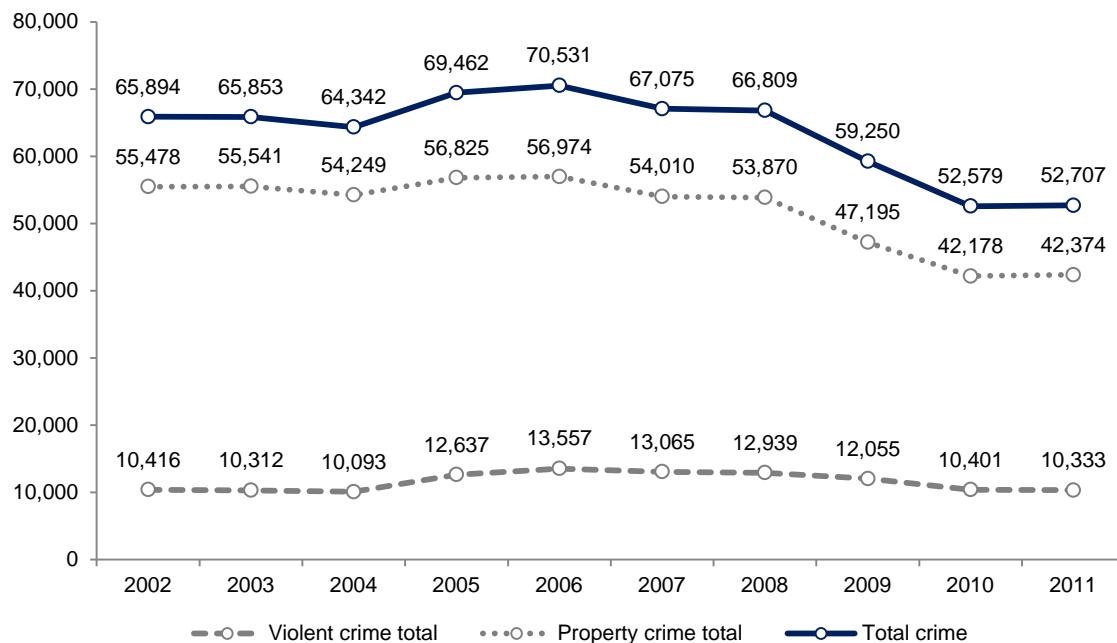
Employee Type	Average Salary	Average Benefits/Taxes	Average Full-Loaded Cost
Sworn	\$52,110	\$14,419	\$66,529
Civilian	\$40,959	\$10,370	\$51,329
<b>Variance</b>	<b>\$11,151</b>	<b>\$4,049</b>	<b>\$15,200</b>

### Crime Challenges and Staffing

One of the most critical measures of a police department’s workload is the City’s crime rate. Crime rate changes are important for the community’s perception of “how safe” the City is and speak to its quality of life, an important factor that families, businesses and tourists use in deciding where to live, operate and visit. Similarly, one of the most critical measures of a department’s effectiveness is its success in reducing crime. Crime reduction directly relates to the MPD’s mission focus on safety and is important for measuring the Division’s success. Memphis’ crime rate, and particularly the violent crime rate, poses a significant challenge to the City.

Based on UCR data, crime in Memphis decreased from 2002 to 2011 by 20.0 percent. Property crimes (e.g. burglary, larceny theft, motor vehicle theft, etc.) accounted for approximately 80 percent of total UCR crimes on an annual basis. From 2002 to 2011, property crime decreased by 23.2 percent. Violent crime (e.g. murder, rape, robbery, aggravated assault, etc.) constitutes the remaining 20 percent of all UCR crime in Memphis. From 2002 to 2011, violent crime decreased by 0.8 percent.

### Memphis Violent and Property Crimes – 2002-2011



Source: FBI UCR data, 2002-2011

Murders decreased by 21.5 percent, rapes decreased by 23.4 percent and robberies decreased by 27.4 percent. Among property crimes, all categories experienced a decreased number of incidents in 2011 as compared to 2002. During this time, burglaries decreased by 18.6 percent, larceny-theft decreased by 14.3 percent and motor vehicle thefts decreased by 62.8 percent.

While Memphis was able to achieve an overall crime reduction of 20.0 percent, largely from a sizeable decrease in property crimes, violent crimes remained largely unchanged due to a significant increase in the number of aggravated assaults.

### Memphis Violent and Property Crime Incidents – 2002 – 2011

Year	Violent Crime					Property Crime			
	Violent crime total	Murder and Non-negligent Manslaughter	Forcible rape	Robbery	Aggravated assault	Property crime total	Burglary	Larceny-theft	Motor vehicle theft
2002	10,416	149	517	4,244	5,506	55,478	16,360	29,899	9,219
2003	10,312	126	449	4,299	5,438	55,541	16,908	30,099	8,534
2004	10,093	107	448	3,773	5,765	54,249	14,643	32,250	7,356
2005	12,637	138	403	4,466	7,630	56,825	15,856	32,663	8,306
2006	13,557	149	434	5,313	7,661	56,974	16,457	33,783	6,734
2007	13,065	131	450	4,871	7,613	54,010	14,620	33,186	6,204
2008	12,939	138	366	4,788	7,647	53,870	15,879	32,572	5,419
2009	12,055	132	382	4,139	7,402	47,195	13,943	29,059	4,193
2010	10,401	89	433	3,237	6,642	42,178	13,100	25,144	3,934
2011	10,333	117	396	3,083	6,737	42,374	13,309	25,637	3,428
<b>% Change</b>	<b>-0.8%</b>	<b>-21.5%</b>	<b>-23.4%</b>	<b>-27.4%</b>	<b>22.4%</b>	<b>-23.6%</b>	<b>-18.6%</b>	<b>-14.3%</b>	<b>-62.8%</b>

Source: FBI UCR data – 2002-2011

According to 2011 FBI Uniform Crime Report (UCR) data, among cities with 500,000 or more residents, Memphis ranked second in total crime rate per 100,000 residents. Memphis ranked second in violent crimes per 100,000 residents and ranked first in property crimes per 100,000 residents.

For violent crimes, Memphis ranked 4<sup>th</sup> in murders per 100,000 residents, 4<sup>th</sup> in rapes per 100,000 residents, 7<sup>th</sup> in robberies per 100,000 residents and 2<sup>nd</sup> in aggravated assaults per 100,000 residents. For property crime, Memphis ranked 2<sup>nd</sup> in burglaries per 100,000 residents, and 3<sup>rd</sup> in larcenies per 100,000 residents.

### 2011 FBI UCR Crime Rate Data – Cities with 500,000 or More Residents

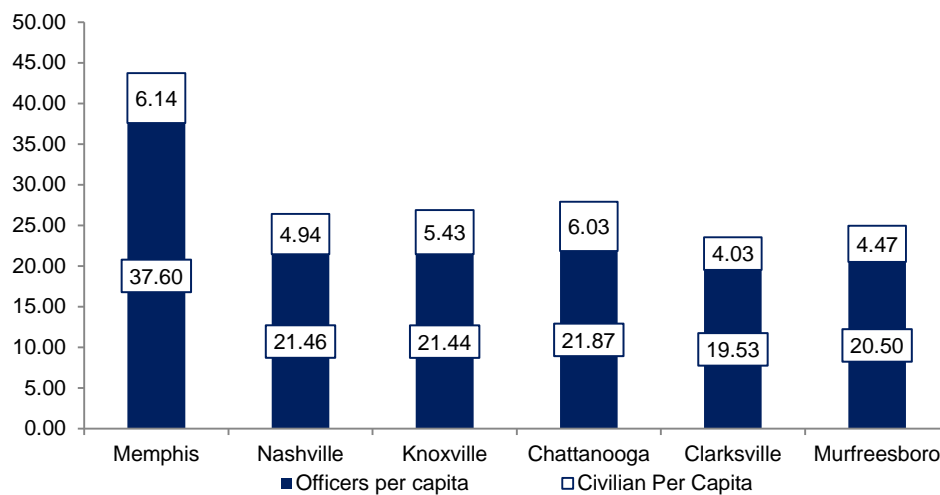
City	Population	Violent Crime Rate (per 100,000 residents)	Property Crime Rate (per 100,000 residents)	Total Crime Rate (per 100,000 residents)	Violent Crime Rate Rank	Property Crime Rate Rank	Total Crime Rate Rank
Detroit	713,239	2,137.43	6,143.52	8,280.95	1	3	1
<b>Memphis</b>	<b>652,725</b>	<b>1,583.06</b>	<b>6,491.86</b>	<b>8,074.92</b>	<b>2</b>	<b>1</b>	<b>2</b>
Columbus	787,609	658.32	6,226.82	6,885.14	15	2	3
Oklahoma City	586,208	871.36	5,819.27	6,690.63	9	5	4
San Antonio	1,355,339	519.28	5,966.63	6,485.91	27	4	5
Baltimore	626,848	1,417.41	4,757.77	6,175.18	3	16	6
Houston	2,143,628	974.61	5,053.86	6,028.47	8	12	7
Milwaukee	597,426	996.11	5,027.74	6,023.84	7	13	8
Nashville	612,789	1,180.83	4,777.01	5,957.84	5	15	9
Albuquerque	551,961	762.19	5,068.47	5,830.67	11	10	10

Source: FBI UCR 2011 data

The vast majority of police responses are to calls not related to the serious crimes tracked by UCR data. While there were approximately 50,000 UCR crimes in 2011, the MPD responded to nearly one million calls for service. Those calls included responses to less serious crimes. But they also included responses to calls that could have been addressed by someone other than a sworn officer. According to a May 2012 PERF study, MPD responded to more than 66,000 burglar alarm calls, more than 36,000 accidents and more than 8,000 animal/dog calls. Each response to a call unrelated to serious crime reduction or crime prevention takes away resources from addressing one of the City's foremost challenges.

As of 2011, FBI UCR data indicates the MPD has 43.74 FTEs per 10,000 residents – 37.6 of whom are sworn officers. No other Tennessee city came close to this level of per capita staffing. However, among national benchmarks (e.g. Atlanta, Baltimore, Birmingham, Boston, New Orleans, Seattle, St. Louis), Memphis has the 3<sup>rd</sup> lowest FTEs and officers per capita.

**TN Cities' FTEs Per Capita - Sworn and Civilian, 2011**



**Comparison of Police Staffing in Benchmark Jurisdictions**

FBI UCR Data Police Agency Employees - 2011	Population	Total law enforcement employees	Total officers	Total civilians	FTE per capita	Officers per capita
<b>Memphis</b>	<b>652,725</b>	<b>2,855</b>	<b>2,454</b>	<b>401</b>	<b>43.74</b>	<b>37.60</b>
Atlanta	425,533	2,069	1,693	376	48.62	39.79
Baltimore	626,848	3,470	2,931	539	55.36	46.76
Birmingham	213,258	1,163	877	286	54.53	41.12
Boston	621,359	2,719	2,156	563	43.76	34.70
New Orleans	346,974	1,609	1,349	260	46.37	38.88
Seattle	618,209	1,804	1,305	499	29.18	21.11
St. Louis	320,454	1,920	1,363	557	59.91	42.53

Increasing the number of sworn officers – as Memphis did – is not the only method to reduce violent crime. Between 2006 and 2011, seven US cities of 500,000 or more residents achieved violent crime rate reductions of greater than 25 percent – a quarter more than Memphis. No city with 500,000 or more residents had an increase in officers per 100,000 residents greater than Memphis, and three other cities

of 500,000 or more residents achieved violent crime rate decreases with a reduction in officers per capita. Within Tennessee, Nashville achieved a 22.7 percent reduction in violent crime between 2006 and 2011 – and slightly reduced its number of sworn officers per 100,000 residents. During this time, other cities decreased FTEs and sworn officers per 100,000 residents and achieved greater reductions in violent crime.

Memphis remains an outlier in the size of its Police Department when compared to other cities with 500,000 or more residents that have achieved the greatest reductions in violent crime rate over five years. Moreover, when compared to seven cities that achieved reductions in violent crime greater than 25 percent between 2006 and 2011, Memphis increased its sworn staffing at a greater rate than all of them.

### Violent Crime Rate and Staffing Changes – 2006-2011

2006-2011 FBI UCR Data	2006 FTE	2011 FTE	2006 Officers	2011 Officers	2006 Violent Crime Rate	2011 Violent Crime Rate	FTE % Change	Officers Per 100,000 % Change	Violent % Change	Population Change
<b>Memphis</b>	<b>2,440</b>	<b>2,855</b>	<b>1,990</b>	<b>2,454</b>	<b>1,989</b>	<b>1,583</b>	<b>17.0</b>	<b>28.6</b>	<b>-20.4</b>	<b>-4.1</b>
Jacksonville	2,858	3,161	1,690	1,645	837	621	10.6	-7.2	-25.8	4.9
Charlotte	2,007	2,214	1,558	1,726	1,077	606	10.3	-1.9	-43.7	12.9
Phoenix	3,829	4,169	2,896	3,079	738	552	8.9	10.0	-25.2	-3.4
Portland	N/A	1,201	N/A	956	714	515	N/A	N/A	-27.9	8.8
Dallas	3,610	4,052	3,043	3,511	1,206	681	12.2	17.8	-43.5	-2.0
Los Angeles	12,685	12,724	9,393	9,860	787	522	0.3	6.1	-33.6	-1.1
Boston	2,625	2,719	2,056	2,156	1,339	845	3.6	-5.1	-36.9	10.5

Source: FBI UCR data 2006, 2011

The link between the number of police officers and crime rate reduction is, at best, elusive. Different studies have found different relationships and data suggest variation by city.<sup>43</sup> Other approaches related to crime prevention, prosecution and punishment may have as much, if not more, of an impact on crime reduction and often come at a lower cost than sworn police officers.<sup>44</sup> For instance, the following alternatives to additional sworn police personnel, when implemented and managed properly, have shown significant policy and fiscal impacts:

- Teen courts and family-based therapy for juvenile offenders
- Restorative justice for low risk offenders
- Employment and job training for prior offenders
- Intensive supervision
- Community-based drug treatment programs

<sup>43</sup> For instance, a 2010 study by RAND, Hidden in Plain Sight – What Cost-of-Crime Research Can Tell Us About Investing in Police,” concluded that “returns on investments in additional police in terms of reduced crime...are likely to be appreciably above hiring costs.” A 2007 Brookings Institution Policy Brief concluded that increased police help reduce crime, but other factors also play a significant and important role.

<sup>44</sup> Many of these approaches and suggestions were also discussed in Memphis Fast Forward’s “Operation: Safe Community” report which was produced by the Memphis Shelby Crime Commission in January 2012 (most recently updated in October 2012).

## Fire

The Memphis Fire Division (MFD) provides a wide range of emergency response and public safety services, including fire suppression, emergency medical services, rescue services, environmental and hazardous materials response, fire prevention and education, fire inspections and emergency preparedness. The divisions within the MFD are organized as follows:

- **Administration:** includes the Director, Deputy Director, Deputy Chief for Planning, Deputy Chief for Emergency Operations and Fire Administrator who are responsible for the overall performance and fiscal management of the department.
- **Firefighting:** includes Division Chiefs, Battalion Chiefs, Lieutenants, Drivers and Firefighters that deliver emergency and non-emergency response to incidents including fires, emergency medical events, rescues, hazardous conditions and other calls for service.
- **Emergency Medical Services (EMS):** includes the Deputy Chief for Emergency Medical Services, Division Chief, Battalion Chiefs, Lieutenants and Paramedic Firefighters that provides advanced life support (ALS) and basic life support (BLS) for emergency and non-emergency medical incidents.
- **Airport:** includes the Chiefs for Air Rescue, Lieutenants, Drivers, Paramedic Firefighters and Firefighters that provide emergency response services at Memphis International Airport.
- **Communications:** includes the Communications Manager, Watch Commanders, Senior Fire Alarm Operators and Fire Alarm Operators that receives calls for non-medical and medical emergencies and dispatches incident response units.
- **Training:** includes the Division Chief, Battalion Chief, and Lieutenants that coordinate in-service training for current commissioned personnel and recruit training program.
- **Fire Prevention:** includes the Fire Marshall, Assistant Fire Marshalls, Fire Prevention Managers, Fire Inspectors, Anti-Neglect Inspectors, Chief Fire Investigator and Fire Investigators that provide fire code inspections, arson investigations and public education programs.
- **Support Services:** includes the Battalion Chief, Air Mask Manager, OSHA Coordinators, Air Mask Mechanics, Fire Hydrant Repairs, and Apparatus Mechanics that provide maintenance and repair to fire and medical apparatus, air masks and other emergency response equipment.
- **Logistical Services:** includes the Manager of Logistical Services, Crewpersons and Fire Material Specialists that maintain equipment, provide supplies and maintain buildings and grounds for incident response personnel.

## Staffing

In FY2013, the MFD had an authorized compliment of 1,831 FTEs. Of the budgeted positions, 87 percent are allotted to emergency response personnel that serve in the Firefighting, EMS or Airport divisions and the remaining 13 percent serve in administrative or support functions in the Administration, Communications, Training, Fire Prevention, Support Services or Logistical Services divisions. For the purposes of this analysis, commissioned personnel who serve in the Firefighting, EMS and Airport divisions are considered emergency response personnel.



### Adopted FTEs by Division, FY2013

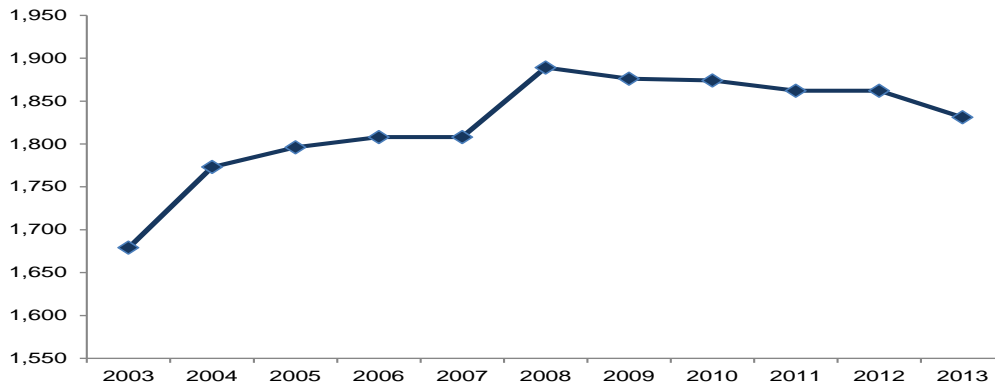
Assignment	Emergency Response Personnel	% of Total FTEs	Non-Emergency Response Personnel	% of Total FTEs
Firefighting	1,157	63%	0	0%
EMS	399	22%	5	0%
Communications	0	2%	65	4%
Fire Prevention	0	0%	65	4%
Support Services	0	0%	41	2%
Airport	33	0%	0	0%
Training	0	0%	26	1%
Administration	0	0%	22	1%
Logistical Services	0	0%	18	1%
<b>Total</b>	<b>1,589</b>	<b>87%</b>	<b>242</b>	<b>13%</b>

Source: City of Memphis, FY2013 Adopted Operating Budget

Even though the MFD's senior leadership, most Training Division personnel and other commissioned staff that serve in administrative roles are experienced emergency response professionals and play significant roles in emergency response planning and management, members of the Firefighting, EMS and Airport divisions comprise what can be considered the "core operations staff" of the department that respond to incidents on a daily basis.

Between FY2003 and FY2013, the number of total budgeted positions in the MFD increased by 9 percent, growing from 1,679 to 1,831, though there has been some decline since FY2008.

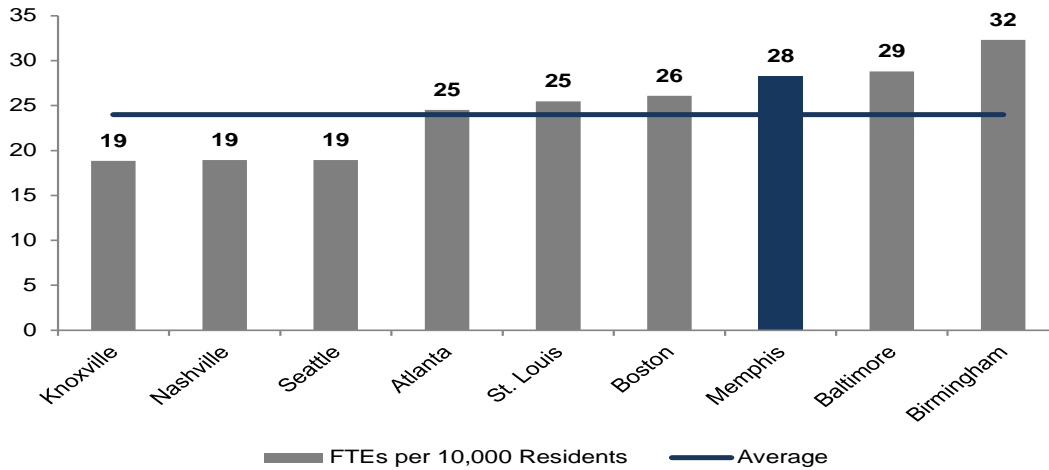
### Adopted FTEs, FY2003–FY2013



Source: City of Memphis, FY2012 Comprehensive Annual Financial Report

When compared to a number of benchmark cities that have fire departments which also provide EMS services, the MFD's staffing per capita is high. In FY2012, the MFD had 28 budgeted FTEs per 10,000 residents. Based on budgeted FTEs (including commissioned and civilian personnel) in each comparison city's FY2012 adopted budget, the average for the comparison group is 24 FTEs per 10,000 residents, with a high of 32 in Birmingham and lows in Knoxville and Nashville of 19.

### Total Budgeted Department FTEs, FY2012 Adopted



Source: FY2012 adopted budgets

### Emergency Response Personnel

In FY2013, the division had 1,589 budgeted emergency response personnel in the Firefighting, EMS and Airport divisions. 73 percent of all emergency response personnel serve in the Firefighting division, 25 percent serve in the EMS division and two percent serve at the Memphis International Airport.

### Emergency Response Personnel by Assignment, FY2013

Assignment	FTEs	% of Emergency Response FTEs
Firefighting	1,157	73%
EMS	399	25%
Airport	33	2%
<b>Total</b>	<b>1,589</b>	<b>100%</b>

Source: City of Memphis, FY2013 Adopted Operating Budget

At 38 percent and 23 percent respectively, Firefighters and Paramedic Firefighters comprise the majority of emergency response personnel. Lieutenants and Drivers, at 18 percent and 17 percent, represent the next largest sub-groups of emergency response personnel. Combined, these four groups make up 96 percent of all emergency response personnel. Deputy Chiefs, Division Chiefs and Battalion Chiefs comprise the remaining four percent of emergency response staff.

### Emergency Response Personnel by Rank, FY2013

Assignment	Deputy Chief	Division Chief	Battalion Chief	Lieutenant	Driver	Firefighter	Paramedic Firefighter	Total
Firefighting	0	7	42	252	262	594	0	1,157
EMS	1	1	5	26	0	0	366	399
Airport	0	0	4	6	8	11	4	33
<b>Total</b>	<b>1</b>	<b>8</b>	<b>51</b>	<b>284</b>	<b>270</b>	<b>605</b>	<b>370</b>	<b>1,589</b>
<b>Percentage of Emergency Response Personnel</b>	<b>0%</b>	<b>1%</b>	<b>3%</b>	<b>18%</b>	<b>17%</b>	<b>38%</b>	<b>23%</b>	<b>100%</b>

Source: City of Memphis, FY2013 Adopted Operating Budget

### Schedule

Emergency response personnel work 24-hour shifts. Under this model, a firefighter works a 24-hour shift and then has several days off before the next 24-hour shift. In Memphis, Firefighting, EMS and Airport personnel are divided into three platoons that work a “24 on, 24 off” followed by 96 hours off. The Fair Labor Standards Act sets a maximum of 212 hours that can be worked by fire personnel during a 28-day period.

The model also results in a certain amount of scheduled overtime, as any additional hours worked during the 28-day cycle beyond 212 hours are subject to an overtime pay rate of at least time and a half. Emergency response personnel average 12 hours of scheduled overtime for every 28-day cycle, which is equivalent to 156 hours of scheduled overtime per year. However, if one shift is missed during this 28-day cycle, any scheduled overtime would be calculated and paid as regular time.

#### Emergency Response Personnel 9-Day Shift Cycle

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9
24	0	24	0	24	0	0	0	0

### Non-Emergency Response Personnel

In FY2013, the division had 241 budgeted non-emergency response personnel in the Administration, EMS Communication, Training, Fire Prevention, Support Services and Logistical Services divisions. Communications and Fire Prevention each represent 27 percent of non-emergency response personnel, followed by Support Services at 17 percent, Training at 11 percent, Administration at 9 percent and Logistical Services at 7 percent. Additionally, the EMS division includes 2 percent of the division’s non-emergency response personnel.

#### Non-Emergency Response Personnel by Assignment, FY2013

Assignment	FTEs	% of Non-Emergency Response FTEs
Administration	22	9%
Communications	65	27%
Training	26	11%
Fire Prevention	65	27%
Support Services	41	17%
Logistical Services	18	7%
EMS	5	2%
<b>Total</b>	<b>241</b>	<b>100%</b>

Source: City of Memphis, FY2013 Adopted Operating Budget

65 percent of the MFD’s non-emergency response personnel are non-commissioned civilian employees who serve in divisions throughout the department, including the Watch Commanders and Fire Alarm Operators in the Communications division. Fire Inspectors and Fire Investigators in the Fire Prevention division comprise the next largest group of non-emergency response personnel at eighteen percent. Lieutenants and Battalion Chiefs serving in multiple divisions represent nine percent and seven percent of non-emergency response personnel, respectively. The remaining five percent of non-emergency response personnel are comprised primarily of Division Chiefs and the department’s senior leadership. In general, these personnel work 40-hour weekly shifts.

## Non-Emergency Response Personnel by Rank, FY2013

Assignment	Dep. Chief or Above	Div. Chief	Bat. Chief	Lt.	Driver	FF / Para. FF	Insp. / Invest.	Civilians	Total
Administration	4	0	0	2	0	0	0	16	22
Communications	0	0	0	0	0	2	0	63	65
Training	1	2	2	18	0	0	0	3	26
Fire Prevention	1	3	4	0	0	0	43	14	65
Support Services	0	0	1	2	0	0	0	38	41
Logistical Services	0	0	1	0	0	0	0	17	18
EMS	0	0	0	0	0	0	0	5	4
<b>Total</b>	<b>6</b>	<b>6</b>	<b>13</b>	<b>22</b>	<b>0</b>	<b>2</b>	<b>43</b>	<b>158</b>	<b>242</b>
<b>Percentage of Non-Emergency Response Personnel</b>	<b>2%</b>	<b>2%</b>	<b>5%</b>	<b>9%</b>	<b>0%</b>	<b>1%</b>	<b>18%</b>	<b>65%</b>	<b>100%</b>

Source: City of Memphis, FY2013 Adopted Operating Budget

Note: Fire Prevention – Fire Marshall included as Deputy Chief, Assistant Fire Marshalls included as Division Chiefs, Fire Prevention Managers included as Battalion Chiefs, Chief Fire Investigator included as Division Chief. Support Services – OSHA Coordinators included as Lieutenants. Logistical Services – Logistical Services Manager included as Battalion Chief.

### Commissioned vs. Civilian Personnel

In FY2013, 91 percent of the MFD's total budgeted FTEs are commissioned personnel, the majority of whom provide incident response in the Firefighting, EMS and Airport divisions. The Training division is comprised primarily of experienced commissioned emergency response personnel and the Fire Prevention staff is commissioned but exempt personnel.

The remaining nine percent of the division's FY2013 budgeted FTEs are civilians, the bulk of whom are civilian employees that provide administrative and support services throughout the division, including budgeting and payroll, equipment and apparatus maintenance and repair, and analytical support. The Communications staff is comprised of civilians, though the schedules, compensation and related work rules for these employees are determined by the same agreement between the City and IAFF Local 1784 bargaining unit as commissioned emergency response personnel. There are approximately six commissioned personnel who serve in administrative or support functions in the Administration, Support Services and Logistical Services divisions, not including the department's senior leadership.

### Standards

Like most fire departments in the U.S., the MFD's personnel and resources are structured to respond to fires. Emergency response is primarily driven by two national standards: NFPA 1710 and ISO ratings.

#### NFPA 1710

The NFPA is a national organization that creates and oversees more than 300 codes and standards relating to fire prevention and suppression, training and equipment. The codes and standards set by the NFPA do not have any legal standing, but are commonly accepted standards used by fire departments throughout the country. NFPA 1710 sets staffing minimums for fire apparatus and guidelines for both emergency response manpower and response time. In terms of manpower, the first alarm (on-scene) weight-of-response levels are as follows:

## NFPA First Alarm Weight-of-Response Staffing Minimums

Incident Type	Occupancy Types	First Alarm Staffing Minimums
High-Hazard Occupancy	Schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings and other high-risk or large fire potential occupancies	24 Firefighters 2 Chief Officers
Medium-Hazard Occupancy	Apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting forces	16 Firefighters 1 Chief Officer
Low-Hazard Occupancy	One-, two-, or three-family dwellings and scattered small businesses and industrial occupancies	12 Firefighters 1 Chief Officer

These standards are based on a strategy of limiting injury and loss from fire through timely response and adequate manpower. Response time and staffing requirements for fire suppression are designed to reduce the likelihood that a fire will spread or flashover. The goal is speed in response to contain the fire and extinguish it, limiting damages and the risk of injury to firefighters and civilians.

NFPA 1710 also sets standards for emergency response times for call processing, turn-out and travel times. Response time is the most common performance measure used by the fire service because it is understood by citizens, easy to compute and useful in the evaluation of end results. Rapid response is also an aspect of the quality of service about which most citizens' care. Highlights of NFPA 1710 include:

- The fire department shall establish a performance objective of having an alarm answering time of not more than 15 seconds for at least 95 percent of the alarms received and not more than 40 seconds for at least 99 percent of the alarms received, as specified by NFPA 1221
- When the alarm is received at a public safety answering point (PSAP) and transferred to a secondary answering point or communication center, the agency responsible for the PSAP shall establish a performance objective of having an alarm transfer time of not more than 30 seconds for at least 95 percent of all alarms processed, as specified by NFPA 1221
- The fire department shall establish a performance objective of having an alarm processing time of not more than 60 seconds for at least 90 percent of the alarms and not more than 90 seconds for at least 99 percent of the alarms, as specified by NFPA 1221
- The fire department's fire suppression resources shall be deployed to provide for the arrival of an engine company within a 240-second travel time to 90 percent of the incidents. The fire department shall have the capability to deploy an initial full alarm assignment within a 480-second travel time to 90 percent of the incidents

Ultimately, NFPA 1710 sets a standard for the first engine to arrive at the scene of a fire within six minutes and 20 seconds of the division being notified of the incident. The same standard for EMS response is six minutes. Most fire departments use the NFPA 1710 standard as a goal, not as a prescriptive requirement. Few departments are currently meeting or exceeding NFPA 1710, especially with respect to travel time (which is the hardest to improve).

### Emergency Response Unit Staffing

Unit	Number	Minimum Staffing	Total Staffing
Engine	52	4	208
Ladder	24	4	96
Quint	4	4	16
Rescue	2	4	8
Ambulance	33	2	66

The MFD's emergency response unit staffing meets the minimums set by the NFPA, with four personnel serving on engines, ladder trucks and quints, while two personnel serve on ambulances.

It should be noted that a 2010 study by the National Institute of Standards and Technology (NIST) tested the practical effect of these standards and concluded – based on field experiments – that the results “establish a technical basis for the effectiveness of company crew size and arrival time in NFPA 1710.”<sup>45</sup>

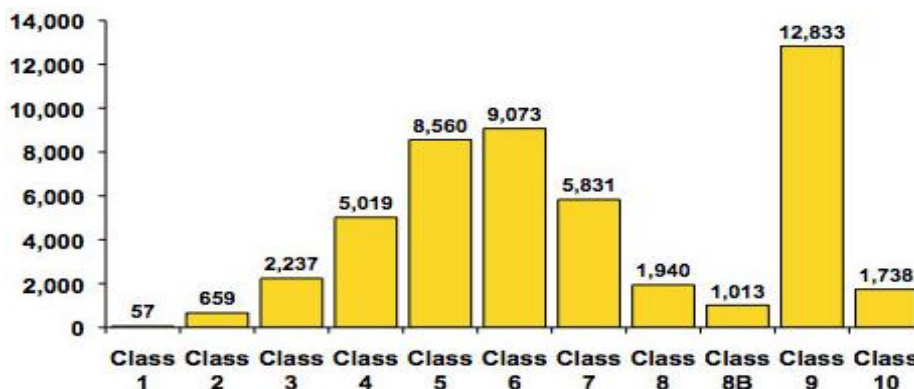
### ISO Ratings

Throughout most of the U.S., the Insurance Services Office, Inc. (ISO) provides a Fire Suppression Rating Schedule (FSRS) that is used to determine the quality of a locality’s fire suppression system in order to help insurance companies determine property insurance rates. Each locality is given a Public Protection Classification (PPC™), a numerical rating ranging from Class 1 (best) to Class 10 (worst). The PPC™, with an overall score ranging from zero to 100 percentage points, are based on three areas of evaluation: 10 percent is based on how well the fire department receives fire alarms and dispatches its firefighting resources, 50 percent is based on the number of engine companies and the amount of water needed to fight a fire and 40 percent is based on the water supply.

The grading schedule rewards fire departments that have more fire stations and more fire response personnel. Criteria for fire departments also include the amount of time spent on training activities, the number of fire apparatus and the functional status and availability of equipment.

Unlike NFPA 1710, ISO does not consider the actual performance of the local fire department. The ratings do not adjust for the actual level of risk in a particular community, so population or demographic characteristics such as the proportion of blighted buildings do not affect the overall score. The rating is applied to the entire community, so no distinction is made between homes in areas close to fire stations and homes that are farther from a fire station. ISO also fails to include response to emergency medical calls. In general, ISO ratings are a crude and limited measure of preparedness for fires and emergency response.

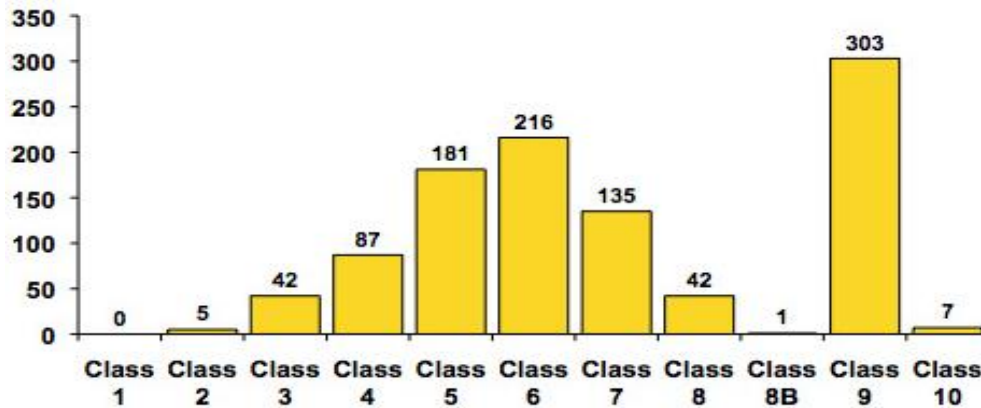
**Distribution of U.S. Communities by PPC™ Class<sup>46</sup>**



<sup>45</sup> Averill, Jason; Moore-Merrell, Lori; et. al. *Report on Residential Fireground Field Experiments, NIST Technical Note 1661*. U.S. Department of Commerce, National Institute of Standards and Technology. April 2010.

<sup>46</sup> Based on information available at [www.isomitigation.com](http://www.isomitigation.com) as of January 14, 2013

### Distribution of Tennessee Communities by PPC™ Class<sup>47</sup>



Memphis currently has a Class 2 rating.<sup>48</sup> Even if Memphis were to drop one level to Class 3, it would remain among the top six percent of fire districts in the nation and the top five percent of the fire districts in Tennessee. Furthermore, it is unclear what the effect of moving from a Class 2 to a Class 3 rating would mean for actual insurance rates in Memphis. According to the ISO's website:

Insurance companies — not ISO — establish the premiums they charge to policyholders. The methodology a company uses to calculate premiums for property insurance may depend on the company's fire-loss experience, underwriting guidelines, and marketing strategy.<sup>49</sup>

In Tennessee, the single largest provider of homeowner insurance is State Farm – accounting for 27.1 percent of market share in 2011.<sup>50</sup> State Farm Insurance stopped relying on ISO ratings in many states a decade ago.

### Fire Risk

Nationally, the number of total fires has been declining over the last three decades. In 1977, there were 3.3 million total fires and 1.1 million structure fires. In 2011, there were 1.4 million total fires and 484,500 structure fires, representing declines of 57 percent and 56 percent respectively. Data reflecting the number of fires in Memphis since 2007 suggest that the overall number of fires in Memphis has remained relatively flat in recent years and that it has more fire risk than similar sized cities across the country. In 2011, Memphis had 6.6 fires per 1,000 residents. By comparison, cities with populations of 500,000 or above had just 3.6 fires per 1,000 residents and southern cities with 500,000 or more residents had only 3.3 fires per 1,000 residents. This represents an additional three fires for every 1,000 residents in Memphis compared to similar sized cities both nationally and regionally.

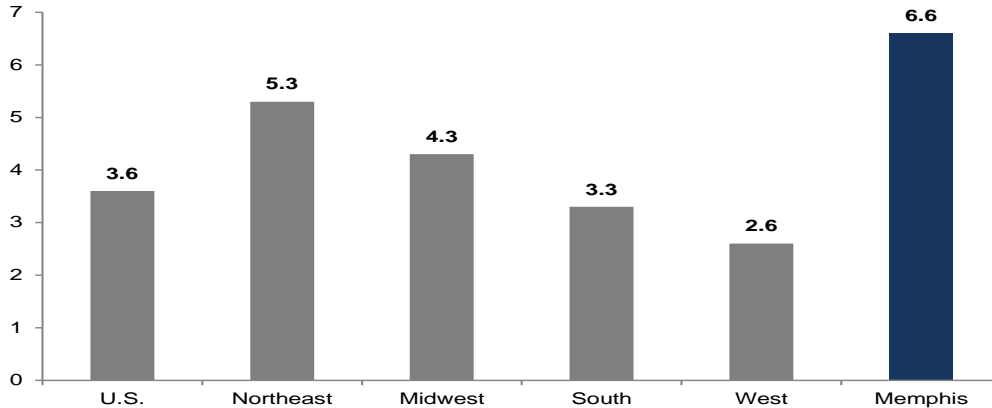
<sup>47</sup> Based on information available at [www.isomitigation.com](http://www.isomitigation.com) as of January 14, 2013

<sup>48</sup> Insurance Services Office, As of August 29, 2011

<sup>49</sup> Insurance Services Office, Inc. How Does PPC™ Information Affect Individual Insurance Policies? [www.isomitigation.com](http://www.isomitigation.com)

<sup>50</sup> [www. http://www.tn.gov/commerce/insurance/documents/HomeownersMarketShare.pdf](http://www.tn.gov/commerce/insurance/documents/HomeownersMarketShare.pdf).

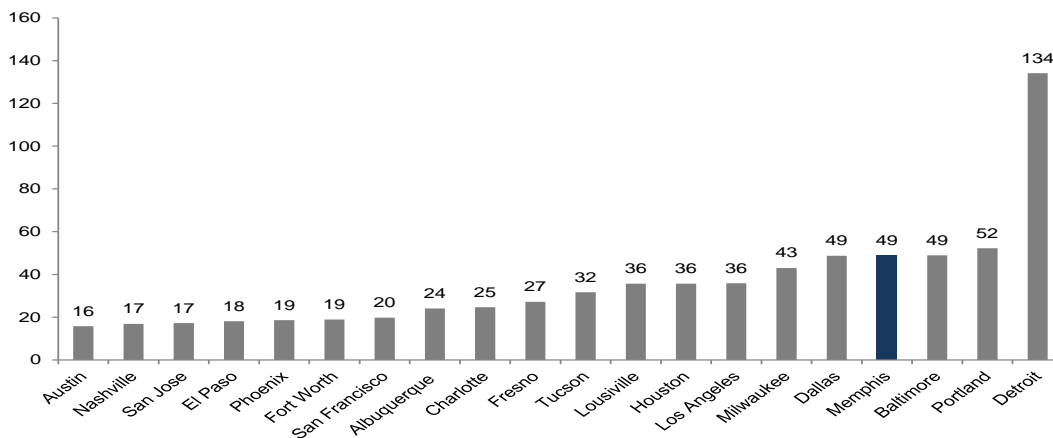
### Comparison of Fires per 1,000 Residents in Cities with Populations 500,000 or Above, 2011



Source: NFPA's Survey of Fire Departments for 2011 U.S. Fire Experience.

A related problem to Memphis' high fire risk is its high arson rate. According to data compiled by the FBI, Memphis had the fourth highest rate of arsons per 100,000 residents in cities with populations of 100,000 or above in the nation at 49.<sup>51</sup>

### Comparison of Arsons per 100,000 Residents in Cities with Population 100,000 or Above, 2011



Source: FBI Uniform Crime Report, 2011.

Memphis has a large number of older structures and distressed neighborhoods with vacant buildings, which creates additional fire risk. According to the US Census Bureau, 51 percent of housing units in Memphis were built before 1970. Older structures are less likely to have sprinklers and other improvements that would reduce their risk of fire. The MFD must also deal with a significant amount of blighted and vacant buildings that drive fire demand in Memphis. The 2010 U.S. Census found that 14 percent of housing units in Memphis were vacant. The NFPA outlines the specific risks associated with vacant buildings:

- Vacant buildings, often unsecured, are usually not in compliance with building and fire codes
- Almost no probability that vacant buildings will have operational sprinkler systems
- Fire is more likely to spread from a vacant building than from other structure fires

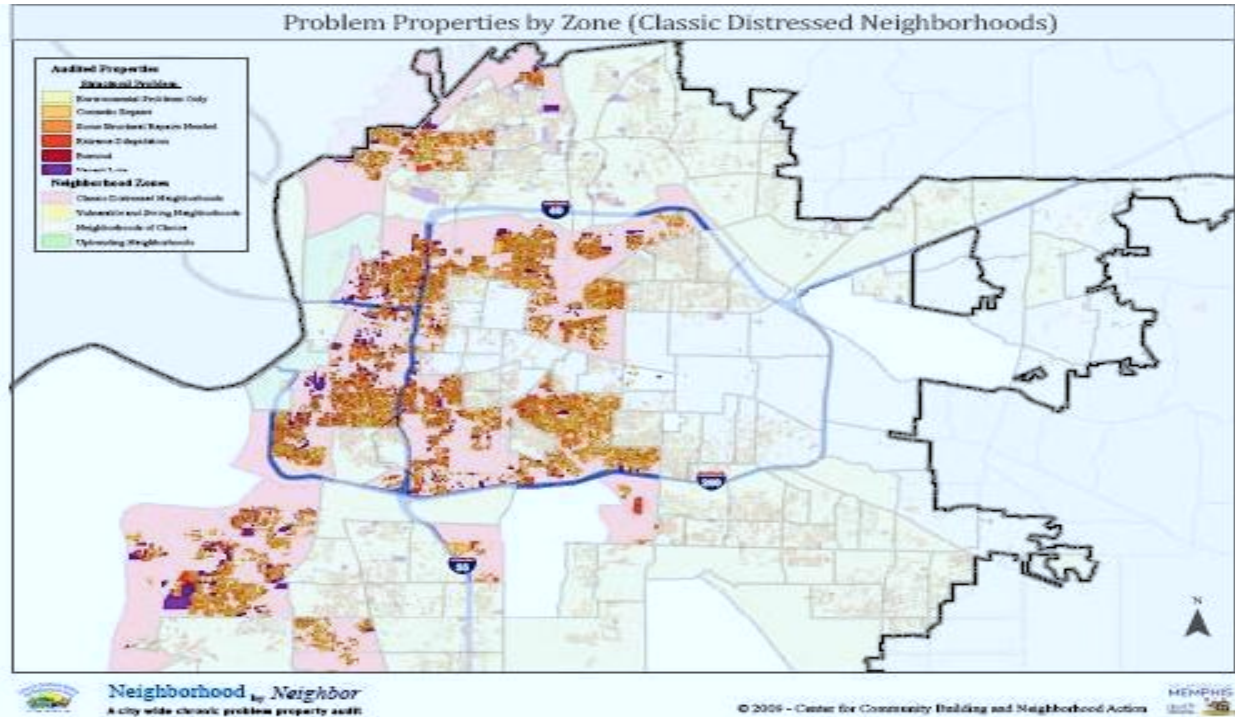
<sup>51</sup> It should be noted that some cities did not submit arson data, including New York City, Philadelphia, Chicago, Boston and Columbus.



- Fires in vacant buildings are more likely to be set intentionally than other structure fires

Deteriorated buildings in need of physical and structural repair also pose a significant threat to firefighters who enter them. Vacant buildings that are otherwise uninhabitable often become refuges for the homeless, so firefighters cannot assume that there are no people inside. Vacant buildings can also be used by squatters who can create unsafe electrical hookups and pose other risks.

### Classic Distressed Neighborhoods in Memphis, 2009



Source: Buchanan, Betts, et. al. *Neighborhood-by-Neighbor: A Citywide Problem Property Audit*. Center for Community Building and Neighborhood Action. April 15, 2010.

Analysis by the Center for Community Building and Neighborhood Action (CBANA) in 2010 identified a group of “classic distressed neighborhoods” that traditionally have had residential poverty rates above 40 percent, low homeownership rates and high mobility rates.<sup>52</sup> These neighborhoods, representing approximately 25 percent of the all housing parcels in Memphis, have a blight rate greater than 50 percent, meaning that more than half of the housing units require some type of repair or code enforcement.<sup>53</sup> In interviews, MFD senior leadership suggested that the geographic areas driving both their fire risk and EMS workload are these same distressed neighborhoods.

### Incidents

In 2012, the MFD responded to 50,313 emergency medical/rescue calls, or 69 percent of all incidents, compared to just 4,454 calls, or just 6 percent, for fires. A higher percentage of the MFD’s workload, 14 percent, are for calls that turn out to be false, often the result of automatic alarms from commercial establishments, than for actual fires.

<sup>52</sup> Buchanan, Betts, et. al. *Neighborhood-by-Neighbor: A Citywide Problem Property Audit*. Center for Community Building and Neighborhood Action. April 15, 2010.

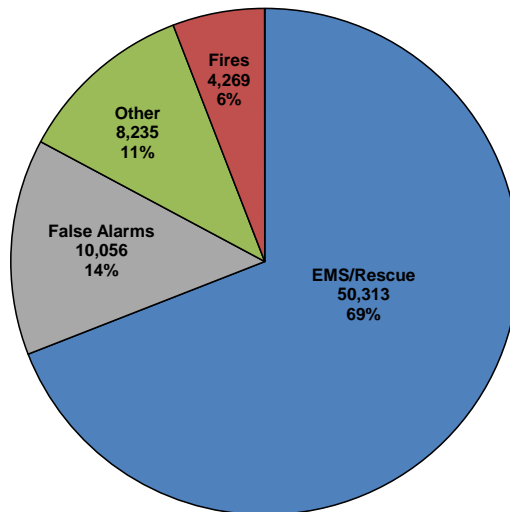
<sup>53</sup> Ibid.

## MFD Incidents, 2012

Incident Type	Total Incidents	Incidents Per Day	Percentage of Total Incidents
EMS/Rescue	50,313	138	69%
False Alarm	10,056	28	14%
Fires	4,454	12	6%
Good Intent	3,531	10	5%
Hazmat	2,444	7	3%
Public Service	1,984	5	3%
Severe Weather	144	0	0%
Special Incident	69	0	0%
Overpressure	52	0	0%
Unspecified	11	0	0%
<b>Total</b>	<b>73,058</b>	<b>200</b>	<b>100%</b>

The MFD responds to almost as many good intent calls, 3,531 or five percent of total incidents, as fires. The other five incident classifications – hazmat, public service, severe weather, special incident and overpressure – represent only eight percent of the division’s workload.

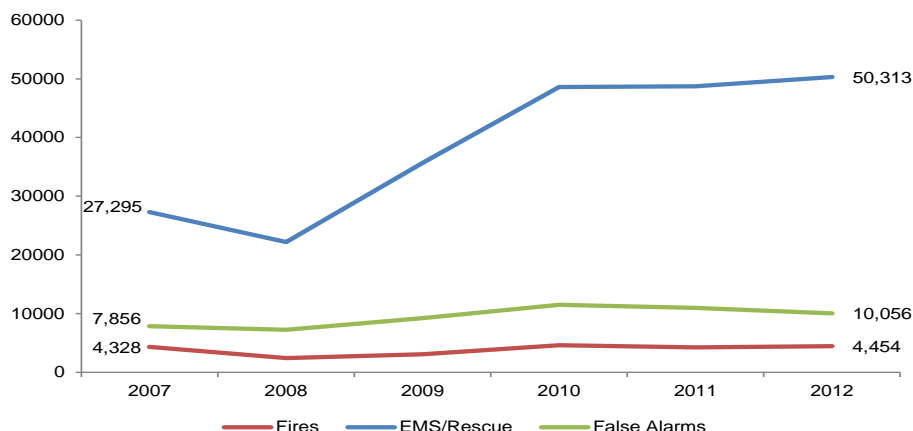
### Comparison of MFD Incidents, 2011



#### Trends

Between 2007 and 2012, the MFD experienced a 66 percent increase in its overall workload, jumping from 44,139 incidents in 2007 to 73,058 in 2012. The primary reason for the increase over this period was an 84 percent increase in calls for emergency medical and rescue, from 27,295 in 2007 to 50,313 in 2012. However, this apparent jump in EMS calls – and total workload – is misleading. The significant increase in EMS calls is more attributable to changes in how emergency response units labeled the incidents they responded to. It is likely that the actual level of EMS and total workload increased at a lower rate over this period. False alarms also grew significantly over this period, increasing 28 percent from 7,856 in 2007 to 10,056 in 2012. While EMS response and false alarms increased significantly over this period, the number of fires in Memphis remained essentially flat, increasing just four percent from 4,328 in 2007 to 4,454 in 2011.

### Fires, False Alarms and EMS/Rescue Calls, 2007-2011



From 2007 to 2011, hazmat calls increased 55 percent from 1,906 to 2,957, public service calls increased 89 percent from 1,276 to 2,411 and good intent calls increased 190 percent from 1,269 to 3,680. Remaining categories of incident response such as severe weather and overpressure increased, while calls for special incident declined, though none of these categories has a significant impact on the department's overall workload.

#### Unit Workload

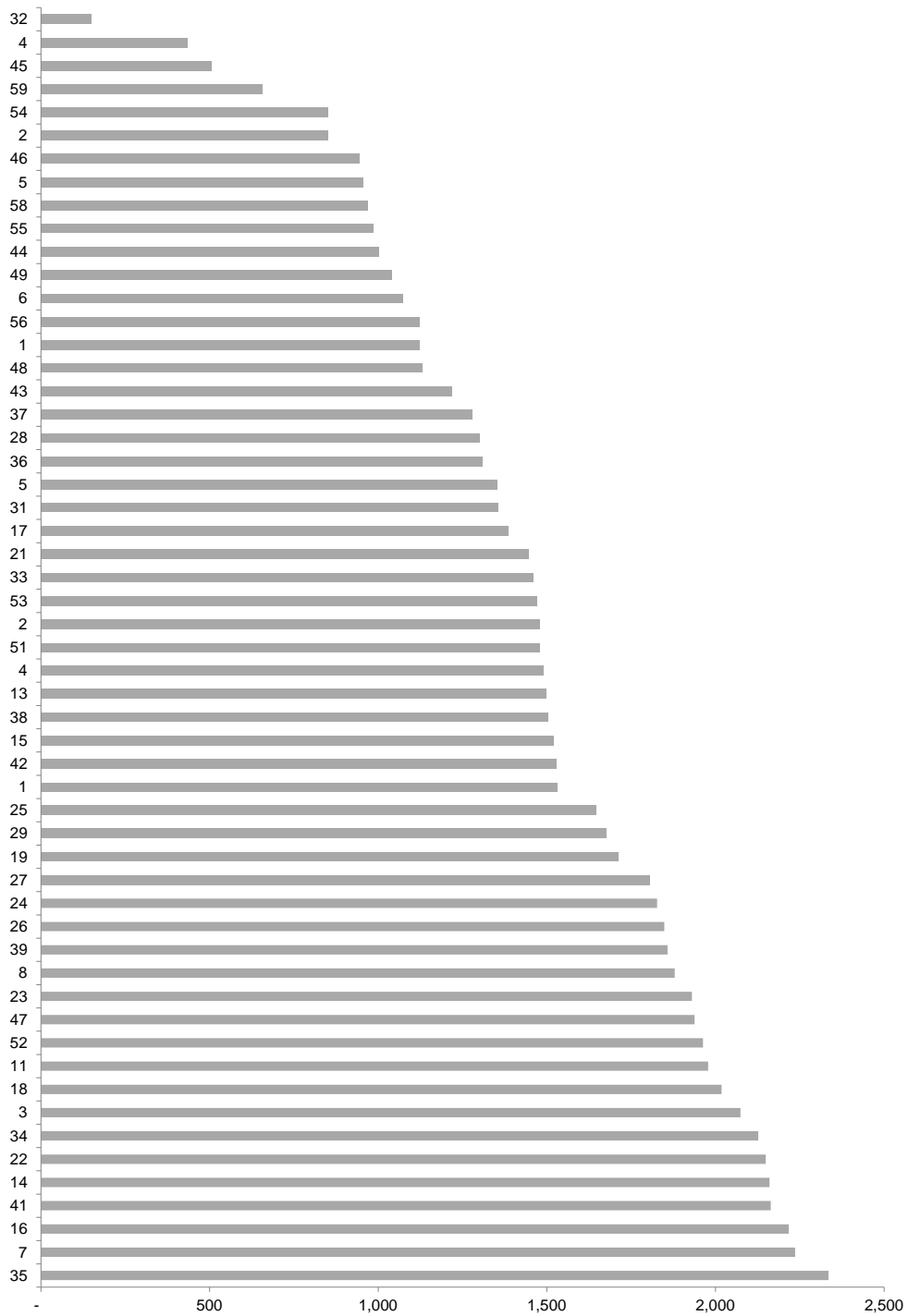
MFD units experience a varying workload. In 2012, engines averaged 4.0 runs per day, ladder trucks averaged 2.2 runs per day and ambulances averaged 8.7 runs per day.

#### MFD Unit Runs, 2012

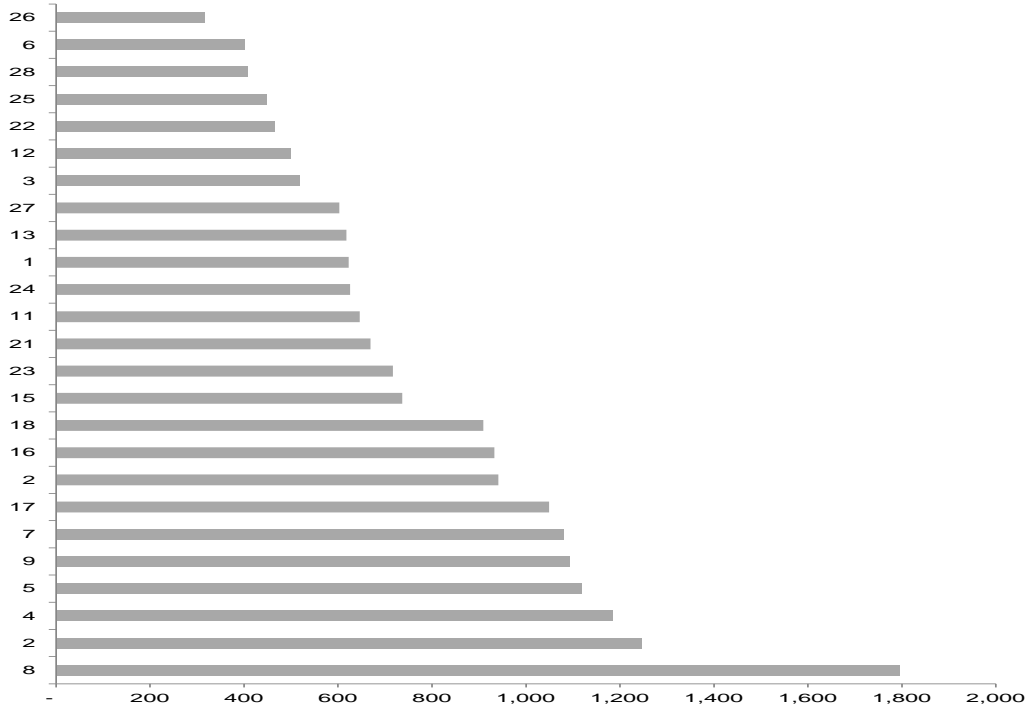
Unit	Total Runs	Average Runs	Median Runs	Total Runs per Day	Average Runs per Day	Median Runs per Day
Engines	81,894	1,486	1,480	224.4	4.0	4.1
Ladders	19,644	786	669	53.8	2.2	1.8
Ambulances	110,910	3,169	3,621	303.9	8.7	9.9

The three busiest engines (35, 7 and 16) averaged 6.1 to 6.4 runs per day. The least busy engine (32) averaged only one call every two to three days. The busiest ladders (8, 2 and 4) averaged 3.2 to 4.9 runs per day, while the seven least busy ladders averaged 0.9 to 1.4 runs per day. The four busiest ambulance units (1, 27, 16 and 3) averaged 12.1 to 12.6 runs per day, while the eight least busy ambulance units averaged 2.0 to 4.9 runs per day. It should be noted that engines and ladders respond to emergency medical calls as well as ambulance units.

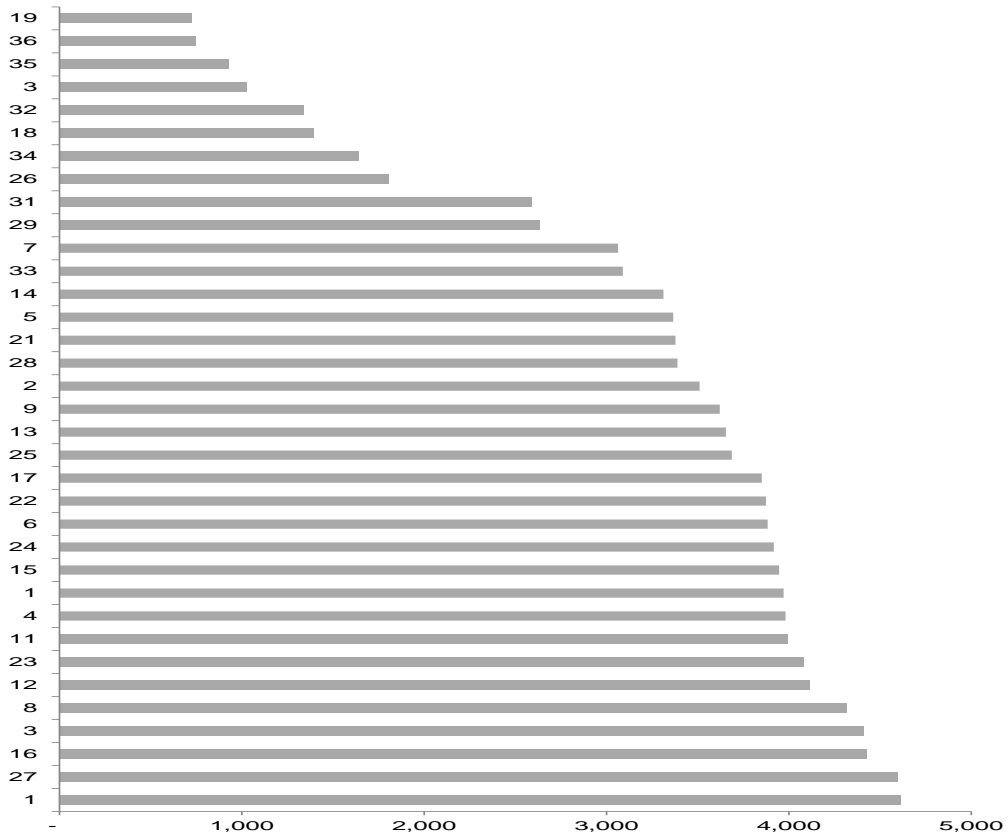
### Engine Company Runs Comparison, 2012



### Ladder Company Runs Comparison, 2012



### Ambulance Runs Comparison, 2012



### Engine Company Workload Overview

Engine	2012 Total Runs	2012 Runs per Day	2007-2012 Average Runs per Day
35	2,335	6.4	4.1
7	2,236	6.1	7.1
16	2,217	6.1	6.6
41	2,164	5.9	4.2
14	2,160	5.9	4.2
22	2,149	5.9	6.5
34	2,127	5.8	5.8
3	2,074	5.7	3.9
18	2,018	5.5	5.4
11	1,978	5.4	3.7
52	1,963	5.4	5.0
47	1,938	5.3	4.9
23	1,930	5.3	5.3
8	1,879	5.1	5.3
39	1,858	5.1	3.4
26	1,848	5.1	3.0
24	1,827	5.0	4.8
27	1,804	4.9	4.6
19	1,711	4.7	4.4
29	1,676	4.6	3.0
25	1,646	4.5	4.1
1	1,532	4.2	4.1
42	1,528	4.2	4.2
15	1,520	4.2	4.1
38	1,505	4.1	3.9
13	1,497	4.1	4.1
4	1,489	4.1	3.9
51	1,480	4.1	3.0
2	1,478	4.0	4.3
53	1,470	4.0	2.7
33	1,460	4.0	4.2
21	1,447	4.0	2.9
17	1,386	3.8	3.3
31	1,357	3.7	3.6
5	1,354	3.7	3.6
36	1,309	3.6	3.6
28	1,301	3.6	3.8
37	1,279	3.5	3.5
43	1,220	3.3	3.3
48	1,130	3.1	2.2
1	1,124	3.1	2.3
56	1,123	3.1	2.1
6	1,074	2.9	3.0
49	1,040	2.8	2.8
44	1,002	2.7	2.5
55	985	2.7	1.8
58	970	2.7	2.4
5	955	2.6	2.6
46	946	2.6	2.4
2	852	2.3	2.2
54	851	2.3	2.3
59	658	1.8	1.7
45	505	1.4	1.4
4	434	1.2	1.2
32	148	0.4	0.4
<b>Average</b>	<b>1,472</b>	<b>4.0</b>	<b>3.6</b>
<b>Median</b>	<b>1,479</b>	<b>4.1</b>	<b>3.6</b>

### Ladder Company Workload Overview

Ladder	2012 Total Runs	2012 Runs per Day	2007-2012 Average Runs per Day
8	1,794	4.9	5.6
2	1,245	3.4	3.0
4	1,184	3.2	3.9
5	1,118	3.1	2.9
9	1,093	3.0	4.2
7	1,080	3.0	2.8
17	1,049	2.9	3.9
2	941	2.6	3.6
16	933	2.6	2.2
18	909	2.5	4.2
15	737	2.0	3.0
23	717	2.0	2.3
21	669	1.8	2.8
11	646	1.8	3.4
24	626	1.7	1.9
1	623	1.7	3.0
13	618	1.7	3.5
27	603	1.7	1.5
3	518	1.4	4.3
12	500	1.4	4.3
22	465	1.3	2.4
25	449	1.2	2.0
28	408	1.1	1.3
6	402	1.1	2.2
26	317	0.9	2.3
<b>Average</b>	<b>786</b>	<b>2.2</b>	<b>3.1</b>
<b>Median</b>	<b>669</b>	<b>1.8</b>	<b>3.0</b>

### Ambulance Company Workload Overview

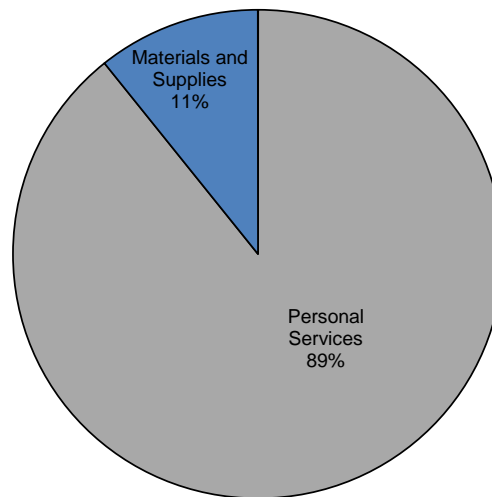
Ambulance	2012 Total Runs	2012 Runs per Day	2007-2012 Average Runs per Day
1	4,613	12.6	12.2
27	4,599	12.6	7.9
16	4,431	12.1	12.5
3	4,410	12.1	12.2
8	4,321	11.8	11.9
12	4,114	11.3	11.9
23	4,083	11.2	10.8
11	3,997	11.0	10.2
4	3,982	10.9	11.2
1	3,971	10.9	10.3
15	3,947	10.8	10.1
24	3,917	10.7	10.7
6	3,884	10.6	10.6
22	3,874	10.6	9.9
17	3,851	10.6	10.1
25	3,687	10.1	10.1
13	3,655	10.0	9.5
9	3,621	9.9	9.7
2	3,510	9.6	9.0
28	3,389	9.3	8.6
21	3,378	9.3	9.5
5	3,366	9.2	8.9
14	3,312	9.1	8.0
33	3,090	8.5	7.6
7	3,064	8.4	8.2
29	2,634	7.2	6.6
31	2,590	7.1	6.5
26	1,805	4.9	4.4
34	1,641	4.5	2.4
18	1,397	3.8	3.3
32	1,343	3.7	3.4
30	1,030	2.8	2.5
35	930	2.5	1.4
36	747	2.0	2.0
19	727	2.0	2.3
<b>Average</b>	<b>3,169</b>	<b>8.7</b>	<b>8.2</b>
<b>Median</b>	<b>3,621</b>	<b>9.9</b>	<b>9.5</b>



## Expenditures

The MFD's FY2013 adopted budget totals \$153.8 million in expenditures. After taking into account \$22.6 million in revenues, the department's net expenditures are \$131.3 million. The personnel services budget of \$137.3 million represents 89 percent of total expenditures, while \$16.6 million in materials and supplies represents 11 percent of total funding.

### Department Expenditures, FY2013 Adopted



Source: City of Memphis, FY2013 Adopted Budget

From FY2008 to FY2012, the average cost of personnel services was \$140.1 million, or 90 percent of average total expenditures and the cost of materials and supplies was \$14.7 million, just 9 percent of average total expenditures. Over this period, the personnel services budget increased by one percent and materials and supplies budget increased 30 percent.

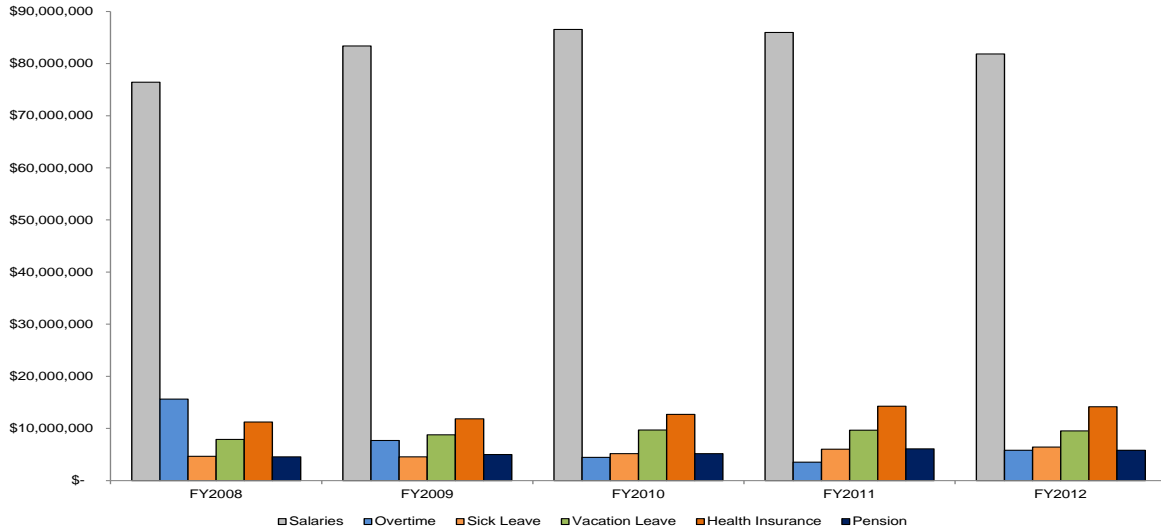
### MFD Expenditures, FY2008–FY2013

Expense	FY2008 Actual	FY2009 Actual	FY2010 Actual	FY2011 Actual	FY2012 Actual	FY2013 Budgeted
Personnel Service	\$137,593,000	\$140,249,000	\$141,635,000	\$144,873,000	\$136,303,000	\$137,288,427
Materials and Supplies	\$11,624,000	\$16,911,000	\$14,670,000	\$15,232,000	\$15,157,000	\$16,539,449
Capital Outlay	\$621,000	\$597,000	\$659,000	\$161,000	\$397,000	\$-
Expense Reimbursement	\$(223,000)	\$(267,000)	\$(252,000)	\$(235,000)	\$(317,000)	\$-
<b>Total</b>	<b>\$149,615,000</b>	<b>\$157,490,000</b>	<b>\$156,712,000</b>	<b>\$160,031,000</b>	<b>\$151,540,000</b>	<b>\$153,827,876</b>

The division's personnel services budget is driven primarily by salaries and health insurance for its workforce. From FY2008 to FY2012, the cost of base salaries – not including supplemental wages such as bonus pay, longevity pay or college incentive pay – increased seven percent from \$76.4 million to \$81.8 million. Over the same period of time, the cost of health insurance increased 26 percent from \$11.3 million to \$14.2 million. Combined, these two items have comprised roughly 70 percent of the MFD's personnel services expenditures and 60 percent of its total expenditures from FY2008 to FY2012.

The MFD experienced a significant decrease in overtime during this period, declining from \$15.6 million FY2008 to \$5.8 million FY2012, a 63 percent decline. Over the same period, wages paid for sick leave increased 39 percent, from \$4.6 million to \$6.5 million, and wages paid for vacation leave increased 21 percent from \$7.9 million to \$9.5 million. Pension costs increased from \$4.5 million in FY2008 to \$5.8 million in FY2012, a 28 percent jump. The combined value of all other personnel service items declined over this period, from \$17.2 million in FY2008 to \$12.7 million FFY2012.

### Personal Services Expenditures, FY2008–FY2012



The materials and supplies budget is for shop charges for repair and maintenance of its fleet, professional services, medical supplies for its emergency response personnel, fuel and utilities.

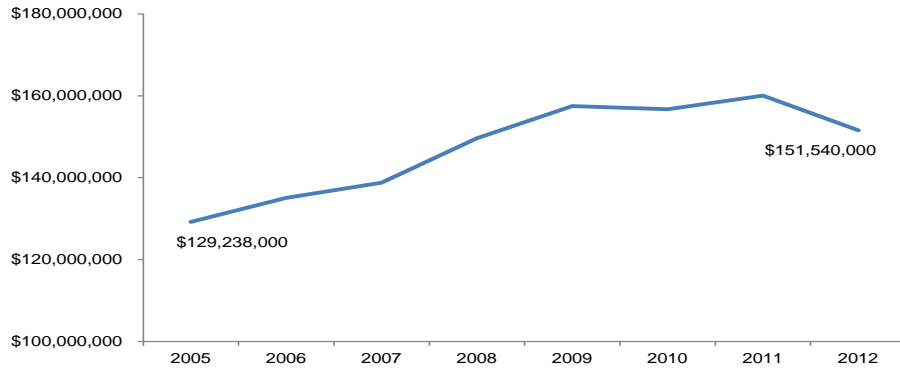
### Materials and Supplies Expenditures, FY2008–FY2013

Expense	FY2008 Actual	FY2009 Actual	FY2010 Actual	FY2011 Actual	FY2012 Actual	FY2013 Budgeted
City Shop Charges	\$442,093	\$3,561,199	\$4,061,386	\$3,356,524	\$3,840,623	\$300,000
Professional Services	\$2,408,671	\$3,304,743	\$2,193,000	\$2,485,129	\$2,380,233	\$2,602,530
Medical Supplies	\$1,221,103	\$1,491,791	\$1,711,237	\$1,743,688	\$2,006,599	\$2,050,000
City Shop Fuel	\$1,931,022	\$1,647,380	\$1,534,504	\$1,820,919	\$1,938,199	\$2,040,000
Utilities	\$1,629,848	\$1,657,024	\$1,694,526	\$1,819,047	\$1,688,053	\$1,734,284
All Other	\$3,991,263	\$5,248,863	\$3,475,347	\$4,006,693	\$3,303,293	\$7,812,635
<b>Total</b>	<b>\$11,624,000</b>	<b>\$16,911,000</b>	<b>\$14,670,000</b>	<b>\$15,232,000</b>	<b>\$15,157,000</b>	<b>\$16,539,449</b>

Though staffing levels remained relatively stable with an average of 1,873 FTEs from FY2008 to FY2012, staffing levels grew from 1,679 FTEs in FY2003 to 1,889 FTEs in FY2008, a 13 percent increase. This

growth in staffing has impacted expenditures after FY2008, such as the increased growth in salaries and decline in overtime. From FY2005 to FY2012, the MFD's total expenditures increased 17 percent, from \$129.3 million to \$151.6 million. Over this period, personnel services expenditures increased 15 percent, from \$118.6 million to \$136.3 million, while materials and supplies expenditures grew 42 percent from \$10.7 million to \$15.2 million.

### Fire Department Expenditures, FY2005–FY2012

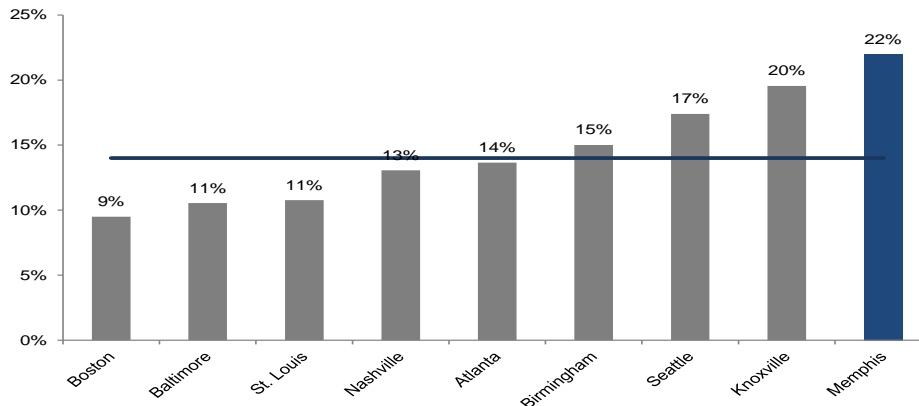


Source: City of Memphis, Comprehensive Annual Financial Report, FY2005-FY2012

The MFD's expenditure growth has outpaced growth in citywide spending over this period as well, as General Fund expenditures grew 13 percent from FY2005 to FY2012. The MFD's expenditure growth has not been as significant as the Police Division's expenditure growth, which has increased 23 percent over the same period.

When compared to benchmark cities, the MFD's expenditures consume a higher percentage of total citywide expenditures. Based on FY2012 adopted expenditures, the MFD was allocated 22 percent of total General Fund revenues, while the average allocation for the comparison cities was 14 percent. For FY2012, the MFD's allocation of General Fund expenditures was at least double the proportion of general fund expenditures provided to the fire departments in St. Louis, Baltimore and Boston.

### Fire Department Expenditures as Percentage of Total General Fund Expenditures (FY2012 Adopted)



Source: FY2012 Adopted Budgets

## Revenues

The MFD generates revenue for the City primarily through charges for ambulance services, reimbursement for service at the Memphis International Airport and for fines related to the City's commercial anti-neglect ordinance. In FY2012, the City collected an estimated total of \$24.1 million in MFD revenues and in FY2013 the City budgeted \$22.6 million in MFD related revenue.

### MFD Revenues, FY2008–FY2013

Source	FY2008 Actual	FY2009 Actual	FY2010 Actual	FY2011 Actual	FY2012 Estimate	FY2013 Budgeted
Ambulance Service	\$15,205,463	\$16,025,068	\$18,097,161	\$19,066,443	\$20,132,530	\$18,700,000
International Airport	\$3,556,901	\$3,577,712	\$3,802,197	\$3,800,931	\$3,630,059	\$3,630,060
Anti-Neglect Enforcement Program	\$238,105	\$221,506	\$175,949	\$185,713	\$173,343	\$200,000
Misc. Collections	\$79,813	\$66,534	\$83,052	\$60,436	\$116,432	\$20,000
Federal Grants	\$352,971	\$2,327,493	\$13,329	\$13,725	\$24,257	\$-
Local Shared Revenue	\$1,698,222	\$2,410	\$8	\$246	\$24,396	\$-
Recovery of Prior Year Expense	\$-	\$97,200	\$-	\$-	\$-	\$-
State Grants	\$6,500	\$-	\$325,393	\$-	\$-	\$-
Miscellaneous Income	\$795	\$-	\$-	\$126.00	\$-	\$-
<b>Total</b>	<b>\$21,138,770</b>	<b>\$22,317,922</b>	<b>\$22,497,089</b>	<b>\$23,127,621</b>	<b>\$24,101,018</b>	<b>\$22,550,060</b>

The Memphis International Airport reimburses the MFD for the salaries and benefits for personnel stationed there, which has resulted in reimbursement amounts ranging from \$3.6 million to \$3.8 million from FY2008 to FY2012. The current agreement, however, may not fully cover indirect costs or pension costs. In FY2013, the budgeted amount of reimbursement for the 33 FTEs at the airport fire station was set at \$3.6 million. Additionally, the department's Anti-Neglect Inspectors, part of the Fire Prevention division, generate fine revenue that results from their inspections of abandoned or potentially dangerous multi-family housing, commercial and industrial buildings and structures. From FY2008 to FY2012, the revenue generated through these inspections averaged \$199,000 annually and was budgeted for \$200,000 in FY2013.

#### *EMS Reimbursement*

The most significant revenue source for the department is charges for ambulance transports performed by the EMS division. From FY2008 to FY2012, the average amount of EMS revenue has been \$17.7 million and the FY2013 budgeted amount of EMS revenue was \$18.7 million. In comparison, the FY2013 cost of operating the EMS division is \$36.4 million, representing a recovery of just 51 percent of the cost of providing these services.

The MFD is not alone in its struggle to achieve cost recovery for EMS. EMS systems typically receive revenue from various sources including commercial insurers, Medicare and Medicaid, patients, managed care providers, and earmarked tax revenues. Like many other EMS systems, the MFD has tried to adjust in recent years as changes by Medicare, Medicaid, and insurance companies have limited reimbursements for EMS and produced a continually changing set of reimbursement policies and procedures. Nationally, Medicare is the leading source of reimbursements, followed by private insurance, Medicaid and direct patient charges. These trends do not hold completely in Memphis, where Medicaid and direct patient charges account for roughly the same amount of revenue as Medicare. From January 1, 2010 to February 29, 2012, the EMS division generated \$126.5 million in gross charges. Over this

period, Medicaid accounted for 32 percent of gross charges, Medicare accounted for 29 percent and direct patient charges comprised 27 percent.

**EMS Cash Receipts and Adjustments from Jan. 1, 2010 – Feb. 29, 2012 (as of July 10, 2012)**

Primary Financial Group	Gross Charges	Gross Charges (%)	Contractual Adjustments	Net Charges	Paid	Gross Collections (%)	Net Collections (%)
Facility	\$1,175,026	1%	\$(224,702)	\$950,324	\$316,564	27%	33%
Insurance	\$13,376,571	11%	\$(521,330)	\$12,855,241	\$12,733,187	95%	99%
Medicaid HMO	\$40,010,350	32%	\$(31,073,264)	\$8,937,086	\$8,770,889	22%	98%
Medicare	\$27,453,690	22%	\$(15,899,759)	\$11,553,931	\$11,456,049	42%	99%
Medicare HMO	\$8,292,911	7%	\$(4,506,120)	\$3,786,791	\$3,773,254	45%	100%
NFWC	\$2,012,822	2%	\$(30,804)	\$1,982,018	\$1,858,637	92%	94%
Patient	\$34,212,788	27%	\$(411,691)	\$33,801,097	\$1,740,864	5%	5%
<b>Total</b>	<b>\$126,534,158</b>	<b>100%</b>	<b>\$(52,667,670)</b>	<b>\$73,866,488</b>	<b>\$40,649,444</b>	<b>32%</b>	<b>55%</b>

Direct patient charges are primarily generated by individuals who do not have health insurance and often have a limited ability to pay. In many cases, public EMS providers subsidize transports for patients without insurance as a public service, and this is essentially the case in Memphis. After accounting for contractual adjustments, such as receiving reimbursements from Medicare or Medicaid, direct patient charges represent 46 percent of net charges during this period. Unsurprisingly, the collection rate of 5 percent of these charges is almost nonexistent. As previously stated, the MFD has suggested that Memphis' economically distressed neighborhoods, and the many impoverished residents living in those neighborhoods, drive its EMS workload demand. Based on 2011 data, Memphis has 134,473 non-elderly residents without health insurance coverage, representing approximately 21 percent of Memphis' total population.<sup>54</sup>

Memphis' overall collection rate exceeds the national standard. Nationally, the average collection rate for EMS systems is 44 percent to 52 percent depending on whether the transport is for BLS, ALS-1 or ALS-2 transports.<sup>55</sup> The MFD's 55 percent net collection rate suggests that, while it is only recouping about half the cost of its EMS services, the collection rate is in line with other EMS systems nationally. Nonetheless, recovering only half the cost of service has resulted in an escalating amount of unpaid receivables. For example, from February 2010 to January 2012, the total value of outstanding receivables for EMS charges rose 194 percent from \$4 million to \$11.8 million.

The MFD's billing and collections are outsourced. Since January 2010, billing has been performed by Digitech Computer, Inc. and for approximately one year collections has been handled by Affiliated Computer Services, Inc. (ACS). Before ACS, a different local firm handled collections.

<sup>54</sup> U.S. Census Bureau, 2011 American Community Survey 1-Year Estimates

<sup>55</sup> Michael Ragone. "2011 JEMS 200-City Survey." Journal of Emergency Medical Services. February 2012.

### EMS Revenue Receivables Feb. 2010 – Jan. 2012

Month	Ending Value of Accounts Receivable
Feb-10	\$4,019,807
May-10	\$7,166,054
Aug-10	\$8,947,614
Nov-10	\$9,724,949
Feb-11	\$9,230,524
May-11	\$9,638,614
Aug-11	\$10,629,138
Nov-11	\$11,828,499
Jan-12	\$11,831,472

Source: Memphis Fire Department

## Initiatives

The City has identified the following high impact initiative areas for action:

- Define core services for Police, and Fire
- Develop and implement cost savings/efficiency measures for public safety
- Consolidate back office functions and dispatching for Fire and Police Divisions
- Immediate review of public safety operations in light of zero based budgeting
- Finding alternatives to EMS/emergency room transports
- Increase false alarm fees

<b>PS01.</b>	<b>Explore Cost Savings Measures for the Police Division</b>	
	<b>Target outcome:</b>	Cost reduction; improved performance
	<b>Five-year financial impact:</b>	\$20.7 million
	<b>Responsible party:</b>	Mayor, CAO/COO, Police Director, Fire Director, Human Resources Director

As discussed in this chapter, there are a significant number of sworn police officers who perform civilian duties. Civilianization enables police agencies to better ensure the safety of the public by deploying the optimal number of sworn officers to patrol. It does this by redeploying sworn personnel in administrative capacities to the field, and hiring civilian personnel to perform traditionally “back-office” functions such as information technology, administration, human resources, supplies, financial management and training. In addition, the PERF study suggests that as many as one in ten calls for police service could be handled by civilians as well.

The City should maximize the number of sworn officers performing patrol and/or related police-specific tasks and minimize the number of sworn personnel performing administrative, back office or non-police functions.

Memphis should take a series of steps to freeze the hiring of new sworn officers and increase the hiring of civilians and Police Service Technicians (PSTs).

The MPD had a PST program until 2011 when it was discontinued. Previously, the MPD PSTs served as entry level, non-permanent positions that primarily handled crash investigations, issued non-moving traffic citations and acted as support personnel. PSTs did not carry weapons or respond to crime scenes unless called to do so for traffic enforcement reasons. Service as a PST was also meant to assist an individual in preparing for a career as a sworn police officer through education, training and work experience. This initiative proposes that the MPD reinstate the PST program, utilize differentiated response – staffed in large part by PSTs – to handle lower priority calls. Costs associated with the hiring of additional civilian PSTs will be offset by savings achieved from reducing the need to hire higher cost new officers.

Civilians are, on average, \$15,200 less expensive than sworn personnel.

Over the next five years, the MPD should reduce its sworn headcount by 280 officers – and replace those officers on a one for one basis with a combination of lower cost civilian clerical employees and PSTs.

Assuming 100 separations annually due to normal attrition, this goal can be achieved by the end of the third year of the plan. While the number of sworn officers will decline, the number of officers available for patrol will likely increase as the number of sworn officers assigned to civilian roles is greatly reduced.

<b>PS02.</b>	<b>Explore Cost Savings Measures for Fire Division</b>	
	<b>Target outcome:</b>	Cost reduction
	<b>Five-year financial impact:</b>	\$7.5 million
	<b>Responsible party:</b>	Fire Director

Ideally, any recommendations for reduction in MFD staffing levels would be based on a comprehensive workload and deployment analysis performed by emergency response subject matter experts. However, given the City’s strained financial context, it may be required to look for immediate savings opportunities, and the MFD’s workforce represents a significant portion of the City’s total workforce. In this case, one potential path towards reducing the cost of the MFD is to reduce the minimum manning for engines and ladder trucks for units that have low workload demand.

The MFD’s response unit staffing minimums of four personnel on engines, ladder trucks and quints meet standards set by the NFPA. Most metro fire departments have four staff on engines and ladder trucks, and there are sound operational and safety considerations that support this level of minimum staffing. Since Memphis does have areas of legitimate fire risk it is important that units stationed to respond to these areas maintain their current staffing levels. There are, however, stations that house units with lower workload. The tables that follow identify a number of engines, ladders and ambulance units with workloads that fall well below department-wide averages.

### Low Workload Engines

Engines	2012 Total Runs	2012 Runs per Day	2007-2012 Average Runs per Day
49	1,040	2.8	2.8
44	1,002	2.7	2.5
55	985	2.7	1.8
58	970	2.7	2.4
5	955	2.6	2.6
46	946	2.6	2.4
2	852	2.3	2.2
54	851	2.3	2.3
59	658	1.8	1.7
45	505	1.4	1.4
4	434	1.2	1.2
32	148	0.4	0.4
<b>Department Average</b>	<b>1,472</b>	<b>4.0</b>	<b>3.6</b>
<b>Department Median</b>	<b>1,479</b>	<b>4.1</b>	<b>3.6</b>

### Low Workload Ladders

Ladders	2012 Total Runs	2012 Runs per Day	2007-2012 Average Runs per Day
27	603	1.7	1.5
3	518	1.4	4.3
12	500	1.4	4.3
22	465	1.3	2.4
25	449	1.2	2.0
28	408	1.1	1.3
6	402	1.1	2.2
26	317	0.9	2.3
<b>Department Average</b>	<b>786</b>	<b>2.2</b>	<b>3.1</b>
<b>Department Median</b>	<b>669</b>	<b>1.8</b>	<b>3.0</b>

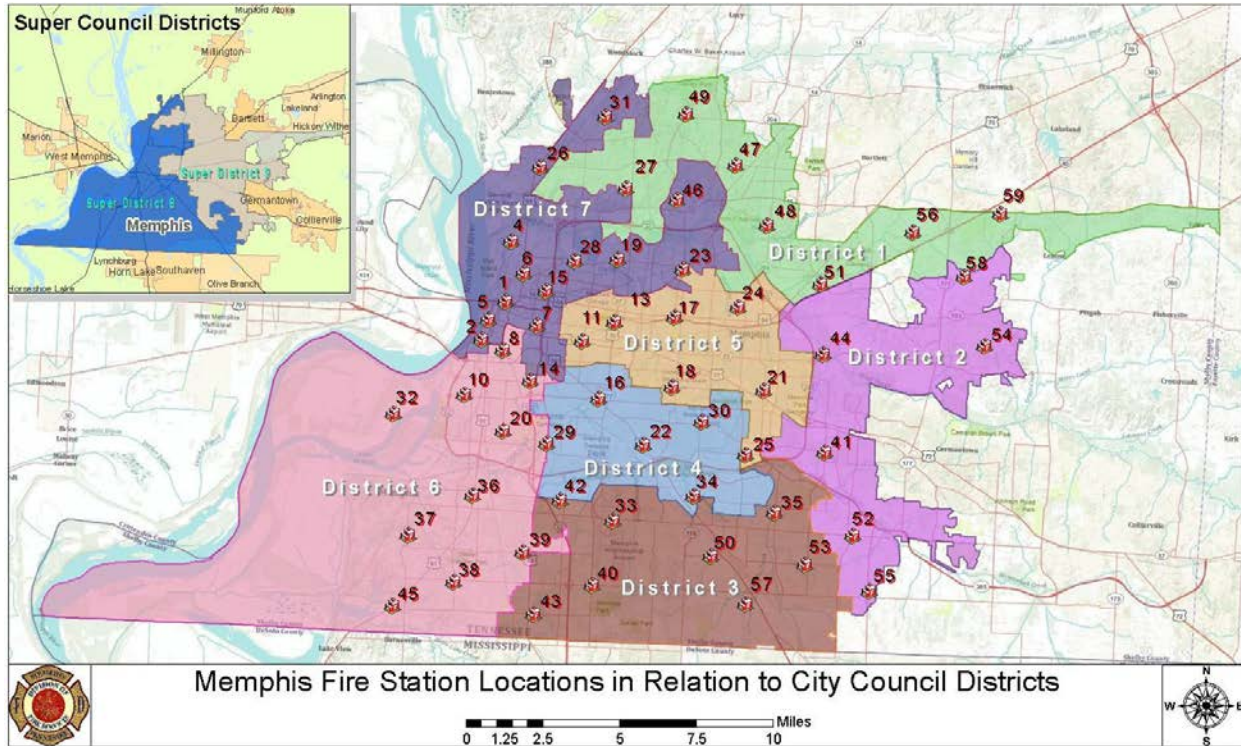
### Low Workload Ambulances

Ambulances	2012 Total Runs	2012 Runs per Day	2007-2012 Average Runs per Day
26	1,805	4.9	4.4
34	1,641	4.5	2.4
18	1,397	3.8	3.3
32	1,343	3.7	3.4
30	1,030	2.8	2.5
35	930	2.5	1.4
36	747	2.0	2.0
19	727	2.0	2.3
<b>Department Average</b>	<b>3,169</b>	<b>8.7</b>	<b>8.2</b>
<b>Department Median</b>	<b>3,621</b>	<b>9.9</b>	<b>9.5</b>



Of these units with lower workloads, there are a number that are based out of the same fire station. While a more detailed demand analysis would provide a more in-depth analysis, the workload data suggests that these low-workload fire stations could experience a reduction in total staffing – across the multiple units housed at those stations – without posing a severe risk to public safety.

### Fire Station Locations



It is the fire stations on the outer rings of the city that have lower workloads than those stations located closer to the areas in the “C” that outlines Memphis’ most distressed neighborhoods. The table below shows six stations that house an engine, ladder and/or ambulance with lower workloads than department averages. Stations 55 and 57 are located in the southeast part of the city and stations 48, 54, 56, 58 and 59 are located in the northeast part of the city. The current total staffing for each station is based on the MFD’s staffing minimums of 4 personnel on engines and ladders and 2 personnel on ambulances.

### Incident Response Unit Staffing

Station	Engine	Ladder	Ambulance	Current Daily Staff	Proposed Daily Staff	Daily Change	Total Change
48	48	22	N/A	8	7	(1)	(3)
54	54	N/A	18	6	5	(1)	(3)
55	55	27	N/A	8	7	(1)	(3)
56	56	25	26	10	8	(2)	(6)
58	58	28	32	10	8	(2)	(6)
59	59	N/A	30	6	5	(1)	(3)
<b>Total</b>	-	-	-	<b>48</b>	<b>40</b>	<b>(8)</b>	<b>(24)</b>

Since a large portion of the department’s emergency response personnel are cross-trained as firefighters and paramedics and since at least 42 engines across the city are staffed by at least one paramedic

fighter as well, there is potential to reduce the total staff based in these stations and still provide adequate emergency response. For example, at station 48, the scenario suggests that instead of having four personnel for Engine 48 and Ladder 22 (for a total of eight), these low-demand units could likely provide adequate emergency response with seven total personnel, most likely with four personnel on the engine and three personnel on the ladder. The total change shown reflects the reduction in daily staffing across the MFD's three platoons. It should be noted, however, that reducing staffing across these stations will require additional operational analysis and consideration outside the scope of this report.

In FY2013, the average cost of a Firefighter (Private Fire II) was approximately \$63,000. This figure includes wages, health insurance, pension contributions and other benefits. By reducing 24 positions across these six stations, the City can achieve savings on personnel of approximately \$7.5 million over five years.

<b>PS03.</b>	<b>Perform Fire Division Workload Demand and Deployment Analysis</b>	
	<b>Target outcome:</b>	Efficient, demand-driven staffing and deployment
	<b>Five-year financial impact:</b>	Initial cost of plan will be offset by projected cost reduction on implementation in changes in deployment
	<b>Responsible party:</b>	Fire Director

In order to appropriately determine the best deployment of resources for the MFD over the long term, the City should complete a detailed workload demand and deployment analysis. Memphis does have legitimate fire risk and the City does need to maintain a strong fire protection response system. However, it is likely that a risk-based approach to staffing and deployment would enable the MFD to meet the emergency response demands of Memphis with fewer personnel at less cost.

The MFD's senior leadership has already taken a number of steps aimed at restructuring the division's operations to meet its workload demand, including:

- An attrition plan that resulted in the reduction of daily minimum staffing from 444 to 423 positions and a total compliment reduction of 77 positions
- Added four quint apparatus, which function as both an engine and ladder truck
- Eliminated four engines, three ladder trucks and one heavy rescue
- Added eight alternative response vehicles that allow for EMS response without the use of engines or ladder trucks
- Implemented policy directive that ambulances will only respond to critical medical emergencies when the department only has five of its 34 ambulances available

These types of staffing and operational changes show that the division's leadership recognizes that its primary function has shifted from responding to fires to responding to medical emergencies. It also shows that the division is taking steps towards reducing its operational costs. The MFD should be commended for taking these steps, and an in-depth analysis of its demand and deployment would allow the division's senior leadership to develop a proactive, long-term vision for the division.

The City should invest in a detailed workload demand and deployment analysis performed by third-party subject matter experts. The types of analysis that should be performed include a detailed analysis of existing station locations, demand for service and the ability of alternatives to meet weight of response requirements. The results of this analysis should identify:

- Geographic differences in fire risk and EMS demand
- Peak-demand periods based on hour of day
- Unit hour workload analysis for every engine and ladder company

- Detailed analysis of alarm handling time
- Opportunities to change fire station locations and deployment

The cost of performing this type of analysis is approximately \$100,000 and given the significance of the MFD in the City's budget context, it should seek to complete this study in FY2014.

<b>PS04.</b>	<b>Consolidate Back Office Functions for Police and Fire Divisions</b>	
	<b>Target outcome:</b>	Cost reduction; improved accountability
	<b>Five-year financial impact:</b>	\$7.6 million
	<b>Responsible party:</b>	Mayor, CAO

The City's budget for FY2013 included civilian positions in administration, support services, logistical services, financial services and personnel in both the Fire Division and Police Division. In total, there were 107 civilian positions across both departments in these functional areas.

Increasingly, public safety agencies across the nation have looked to consolidation as a means of maximizing resources. A 2012 analysis by Michigan State University funded by the Department of Justice found that there were 130 agencies that had nominal levels of consolidation. In some cases, departments had cross-trained firefighters and police officers as public safety officers. More common, however, is the case where departments maintain independence but share back office support.

The cities of Cleveland and Columbus, Ohio, and Indianapolis, Indiana all have combined Departments of Public Safety with separate divisions of police and fire. FY2012 data from these three cities suggest that an average sworn FTE to administrative/civilian FTE ratio was 1 civilian FTE to 10.4 sworn FTE. In FY2012, the same data for Memphis yielded an average of 1 civilian FTE to 7.2 sworn FTEs.

Under a combined back office support for Police and Fire, it is reasonable to assume that the number of civilian staff in purely administrative functions could be reduced by as much as one-third. These savings could be achieved independent of the proposed civilianization of positions in the MPD. The analysis necessary for civilianization may yield additional positions where consolidation would be possible – producing still further savings.

Under this initiative, there would be a reduction of 35 positions through consolidation – with the equivalent of approximately 9 FTEs eliminated in Year 1 and the remainder eliminated in Year 2 and continued through the Plan. Savings are based on an average fully-loaded public safety civilian FTE cost of \$51,329.

<b>PS05.</b>	<b>Create Comprehensive Crime Reduction Plan</b>	
	<b>Target outcome:</b>	Crime reduction; improved accountability; cost reduction
	<b>Five-year financial impact:</b>	Plan will result in improved allocation or resources for crime reduction
	<b>Responsible party:</b>	Mayor, City Council, CAO, Police Director

Fundamentally, the best way to achieve savings in public safety costs in Memphis is to adopt a comprehensive, long term approach to crime reduction. A comprehensive crime reduction plan would focus on cost-effective elements of prevention as well as policing.

The comprehensive crime reduction plan would be built off of the crime reduction strategies outlined in *Operation: Safe Community*. Some of the strategies have been adopted and others have not been fully implemented for a variety of reasons.

The comprehensive crime reduction plan would identify critical challenges, including:

- Availability of firearms
- Levels of juvenile crime
- Activity by gangs
- Drug market activity
- Offenders returning to the community from prison or jail
- Incidence of family violence, including domestic violence and child abuse
- Incidence of substance abuse and addiction
- Police Community Relations

The Strategic Plan should identify citywide and geographically specific strategies to reduce crime that may include, but are not limited to:

- Continued utilization of data in decision-making and problem solving
- Partnerships with communities and other governmental and non-profit organizations
- Aligning deployment with crime reduction strategies

The work of *Operation: Safe Community*, along with efforts by the City such as the Bloomberg Initiative, and participation in efforts related to offender re-entry and the recently announced Memphis Gun Down, point to a recognition that policing is just one tool in the City's crime-fighting tool kit. Other crime reduction strategies have been proven to have a significant impact in the reduction of crime and – in most cases – are generally less expensive than hiring additional police officers.

From a cost perspective, at a minimum, if the City's work through the Bloomberg Initiative proves effective (and all indications point toward that occurring), it would cost the City approximately \$900,000 to fund key elements and costs associated with the current "as-is" program beginning in FY2015 when grant funding expires. If the City wishes to expand the program due to programmatic and policy successes, it could cost the City approximately \$1.1 million to nearly double the current operations.

A 2011 evaluation by the Washington State Institute for Public Policy (WSIPP) identified a series of crime prevention initiatives with a proven record of high return on investment. For example, according to WSIPP, a family-based therapy model designed for juveniles on probation produces benefits of \$37,739 per participant – a return on investment of \$11.86 per dollar invested. The benefits are generated primarily from reduced juvenile crime, but also contain labor market and health benefits due to increased likelihood of high school graduation. A portion of the projected savings is attributable to cost avoidance (those who were not victims of crime as a result of no recidivism) and savings to the government's budget.

With a comprehensive crime reduction plan, the City would be able to more strategically allocate dollars to programs seeking a common outcome – crime reduction. The result would likely be a more balanced approach that might maintain total overall funding at current levels, but maximize the effectiveness of funding through investments in non-policing strategies. Ideally, the City would have a single criminal justice budget that accounted for spending – and performance – across a full range of crime reduction activities.

<b>PS06.</b>	<b>Explore Alternatives for EMS</b>	
	<b>Target outcome:</b>	Service delivery elimination and cost reduction
	<b>Five-year financial impact:</b>	\$17.7 million
	<b>Responsible party:</b>	Fire Director

EMS systems across the country have adopted dramatically different ways of delivering emergency medical services. These models generally fall into four categories: fully-integrated fire, fire based with stand-alone EMS, third service and private service.

A fully integrated fire based system – the model that the MFD currently employs – is an all hazards system capable of responding to multiple different types of emergencies with a single force. These departments tend to see EMS as a natural extension of their public safety mission, as there has been a long-term decline in the number of fire emergencies.

Another model is for fire departments to have a semi-independent EMS division with single-role EMS trained responders that accompany firefighter first responders on emergency calls. These responders perform the traditional functions of a stand-alone EMS operation, such as on-scene patient care and transport. Under this system, there are different job titles and careers for firefighters and EMS personnel; however they exist under the same organization.

The third service model relies on a uniformed civilian city-operated EMS service that can operate as a city department, ambulance authority, or ambulance district. City governments typically provide funding, oversight, purchasing, maintenance, and other support functions for the EMS system.

Private service is one of the most commonly used models for EMS service delivery. Under this model, the department serves as the first responder and a competitively-selected private firm provides emergency medical care and transport. Private service generally functions in three models:

- Public utility model, which involves contracting the EMS function out to a nonprofit provider
- For-profit ambulance service with exclusive or nonexclusive contracts to provide EMS services within the city’s boundaries
- Hospital-based service, which involves emergency medical services provided by a local hospital, typically a large regional medical center

Nationally, 40 percent of respondents to the Journal of Emergency Medical Services annual 200-City Survey indicated that private service provides EMS services in their respective jurisdictions, followed by some type of fire-based service for 37 percent of respondents and third service or hospital based service for 21 percent of respondents.<sup>56</sup>

The following table presents a basic overview of the strengths and weaknesses associated with these models.

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<sup>56</sup> Ragone

## EMS System Design Overview

System	Strengths	Weaknesses
Fire Based Service	<ul style="list-style-type: none"> <li>Easier to deal with large scale emergencies and events</li> <li>Fully integrated first response and ambulance transport</li> <li>Economies of scale from multi-role personnel</li> <li>Single set of rules and pay for first responders and EMTs</li> <li>Integrated command and control</li> </ul>	<ul style="list-style-type: none"> <li>Less attention paid to medical and clinical issues potentially higher labor costs</li> <li>Less emphasis on performance</li> </ul>
Fire Based with Stand Alone EMS	<ul style="list-style-type: none"> <li>Easier to deal with large scale emergencies and events</li> <li>Allows specially-trained firefighters to provide high quality care to patients</li> <li>First response and ambulance transport integrated</li> <li>Some integration of command and control</li> <li>Leverages fire department assets on behalf of EMS</li> </ul>	<ul style="list-style-type: none"> <li>Fewer care advancement opportunities for EMS within Fire</li> <li>Separate work rules and agency culture for EMS within Fire</li> <li>Lack of equity between Fire and EMS personnel</li> <li>Potential EMS morale problems</li> <li>Bifurcated command structure</li> </ul>
Third Service	<ul style="list-style-type: none"> <li>Workforce focused on single mission</li> <li>Single set of rules for employees</li> <li>Heightened public awareness of EMS</li> <li>More scheduling flexibility and lower labor costs than fire-based option</li> </ul>	<ul style="list-style-type: none"> <li>Can lead to redundant administrative personnel and costs</li> <li>Inhibits seamless integration of first response and emergency medical care</li> <li>Can lead to on-scene conflicts over patient care</li> <li>Greater possibility of dispatch communications errors</li> <li>Less focus on performance than with private service</li> </ul>
Private Service	<ul style="list-style-type: none"> <li>Performance mandated by contract</li> <li>Can provide both emergency and nonemergency services</li> <li>Easier to implement peak demand staffing</li> <li>Capability to improve billing and collections</li> <li>Flexibility to engage other regional providers in regional approach</li> <li>Labor costs often lower than public options</li> <li>Lower overall cost structure</li> </ul>	<ul style="list-style-type: none"> <li>Can lead to increased ambulance fees</li> <li>Can lead to reductions in service</li> <li>May require city subsidy</li> <li>Reduced city control of EMS services</li> <li>Decrease in response capacity in the event of a disaster</li> <li>Limited number of qualified bidders</li> <li>Potential for lack of oversight</li> <li>Competition could reduce quality of care</li> <li>Accountability and transparency issues</li> </ul>

Though there are many advantages to the fire based service currently used by the MFD, it is an expensive model to operate. At \$36.4 million, funding for the EMS division comprises 24 percent of total budgeted department expenditures in FY2013 and is scheduled to require a General Fund subsidy of \$17.7 million. Given the City's challenging financial constraints, shifting to a private EMS model could lead to a significant amount of savings simply by reducing staffing over time. Shifting to a private model would require detailed and careful consideration, as well as emergency response expertise, beyond the scope of this report.

As the City considers the best model to provide EMS services, it must also take into consideration the potential impacts of the Patient Protection and Affordable Care Act, generally known as the Affordable Care Act (ACA). This landmark overhaul of America's health care system is likely to have a significant impact on EMS systems, though the exact outcomes are still unknown. In Memphis, the biggest issue to consider is the impact on Medicaid, since it appears that the bulk of the MFD's EMS workload is driven by individuals who do not have health insurance. There are four main issues that the City needs to consider:<sup>57</sup>

- What happens to insurance coverage in Memphis?: Based on 2011 data, Memphis has 134,473 non-elderly residents without health insurance, or 21 percent of the city's total population. It is likely that many of the individuals driving the MFD's EMS workload are part of the 21 percent of Memphians without insurance coverage. A 2010 analysis of the impact of the ACA on Shelby County by the University of Memphis and the Methodist Le Bonheur Center for Healthcare Economics projected a 51 percent increase in coverage for uninsured residents of Shelby County through eligibility changes that allow young adults to remain on their parents' insurance through

<sup>57</sup> McCallion, Teresa. *Healthcare Reform Seen as Unparalleled Opportunity for EMS*. Journal of Emergency Medical Services. August 17, 2012.

the age of 26, the expansion of Medicaid to cover qualifying individuals or the implementation of insurance exchanges where subsidized coverage can be purchased by low-income individuals.<sup>58</sup> Applying this projection specifically to Memphis, a 51 percent increase in the amount of coverage for those previously uninsured would result in approximately 68,581 newly insured non-elderly residents. This would result in approximately 65,892 remaining non-elderly residents without insurance coverage, or 10 percent of the city's total population.

- What happens to demand for service?: It is likely that the MFD is serving as the entry point to the health care system for many residents who do not currently have insurance coverage. As a result, calls for transport could decline over time as a greater portion of residents gain access to primary care and will not need to depend on EMS for access to medical care.
- What happens to Medicaid reimbursements?: While MFD senior leadership and national experts suggest that Medicaid does not cover the full cost of services, if the number of covered individuals in Memphis does increase, then it is quite possible that the MFD's 55 percent collection rate will improve.
- What will be the incentives for EMS providers?: According to Dr. Bill Atkinson, the CEO of the Wake Med health care system in North Carolina, "there seems to be universal consensus that there's going to be a move toward encouragement of prevention, wellness and primary care."<sup>59</sup> Medicare program rules that have been completed suggest that the quality of care provided will be important,<sup>60</sup> and emphasizing and measuring outcomes instead of response times would be a major shift for most fire departments nationally. Once details such as these become clear, it will provide much needed insight on whether a system that is almost completely responsive – such as the MFD's current model – will continue to make sense moving forward.

Based on data from 2010 to 2012, Memphis bills uninsured patients approximately \$16.2 million annually for EMS and has a collection rate of five percent. Assuming that half of those patients obtain Medicaid-like coverage, the City's collection rate would go up to 20 percent. Based on these assumptions and no change in utilization, annual collection would increase from approximately \$800,000 per year to \$2 million per year – or a net increase of \$6 million over five years.

For the purposes of costing, this initiative assumes that the first two years of the plan will be spent developing a plan to wind-down the MFD's EMS services and that a gradual elimination of the function will take place after that. This would result in the eventual reduction of approximately 375 Paramedic Firefighter positions – a reduction of 125 positions per year. In FY2013, the budgeted net expenditures for EMS transport – the amount of funding required by the General Fund to cover personnel and operating costs not covered by ambulance revenue – was \$17.7 million. Savings are based on holding this amount of budgeted expenditures constant and reducing EMS by 125 positions per year (roughly a third) during the last five years of the plan.

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<sup>58</sup> Chang, Gnuschke, et. al. Impacts of Health Reform in Shelby County, Tennessee. December 2010.

<sup>59</sup> Doyle, Jennifer. Health-Care Reform Will Impact EMS Revenues. Journal of Emergency Medical Services. May 21, 2010.

<sup>60</sup> Ragone