

SHELBY CHARTER TOWNSHIP



FIRE DEPARTMENT OPERATIONAL REVIEW



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A member of **THE REHMANN GROUP**



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INTERNATIONAL**

September 9, 2009

Honorable Board of Trustees
Shelby Charter Township
52700 Van Dyke
Shelby Township, MI 48316

Dear Board Members:

We have completed the operational review of the Shelby Township Fire Department. This final report contains the findings and conclusions resulting from this analysis and recommendations for improvement.

As you review this document, you should remain mindful of the fact that an operational review focuses on areas where upgrade or change would be beneficial. In this regard, the positive aspects of the Shelby Township Fire Department are undoubtedly understated. In conducting the study we have concluded that this is a professional and committed emergency services operation. Related to this, our recommendations are intended to further improve the cost effectiveness of operations in a time when financial resources are growing increasingly scarce.

We appreciate the cooperation extended to us by the Shelby Township Fire Department, particularly interim Fire Chief Gene Shepherd and EMS Coordinator Jim Swinkowski. We have had the opportunity to interview many members of the department and have confidentially surveyed all employees regarding their perceptions of operations and service provision. In all cases we found Fire Department employees to be conscientious, candid and willing to offer suggestions for improving operations.

We have sincerely enjoyed this opportunity to work with Shelby Charter Township. Should you have questions concerning this report, please do not hesitate to contact me at 248.579.1113.

Very truly yours,

REHMANN ROBSON

Mark W. Nottley, Principal
Governmental Consulting Division

SHELBY CHARTER TOWNSHIP
FIRE DEPARTMENT OPERATIONAL REVIEW

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SECTION I

STUDY OVERVIEW AND EXECUTIVE SUMMARY

SECTION I

STUDY OVERVIEW AND EXECUTIVE SUMMARY

Shelby Charter Township is a full-service township government serving approximately 71,000 residents. The Township traces its political heritage to 1827, beginning as a rural farm community. The Township has developed rapidly over the prior few decades to become one of the largest local governments in Michigan, and is considered one of the Detroit metro area's most desirable locales; featuring significant upscale residential development, a strong commercial base and a high level of community satisfaction. In every respect, Shelby Township is a community with a significant level of civic pride, and, in turn, high service expectations.

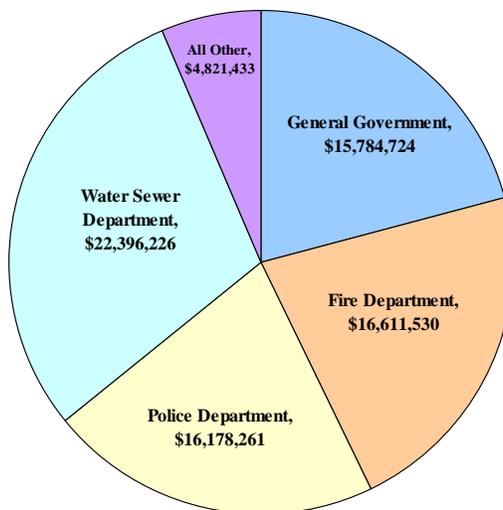
The Township has traditionally met, or exceeded these service expectations in a relatively cost effective manner. However, as is the case in most communities in Michigan, Shelby Township is now facing some significant financial challenges. These are resulting from:

- Reductions in State-shared revenues
- The ongoing impact of the Headlee Amendment and Proposal A
- Reductions in property values resulting from the housing recession
- Reductions in other revenue areas such as investment income and building fees
- Rising employee benefit and operating costs.

Faced with this challenge, the Township has begun the process of evaluating the operating departments to determine potential cost savings that can, and must be realized. This will allow for a preemptive approach to resource management and hopefully, the avoidance of the serious financial problems (and necessary tax increases) that many communities are now facing. Our firm has been selected to assist in conducting these studies.

The first department chosen by the Township Board for evaluation was the Fire Department. As seen in the following Exhibit 1, this was a logical choice, in light of the amount of total resources that the Fire Department commands. As seen in the exhibit, Fire Department expenditures are budgeted at more than \$16 million in FY 2009, or roughly 22% of total expenditures for all Township uses and service areas.

Exhibit 1
Charter Township of Shelby
2009 Total Budget Allocation



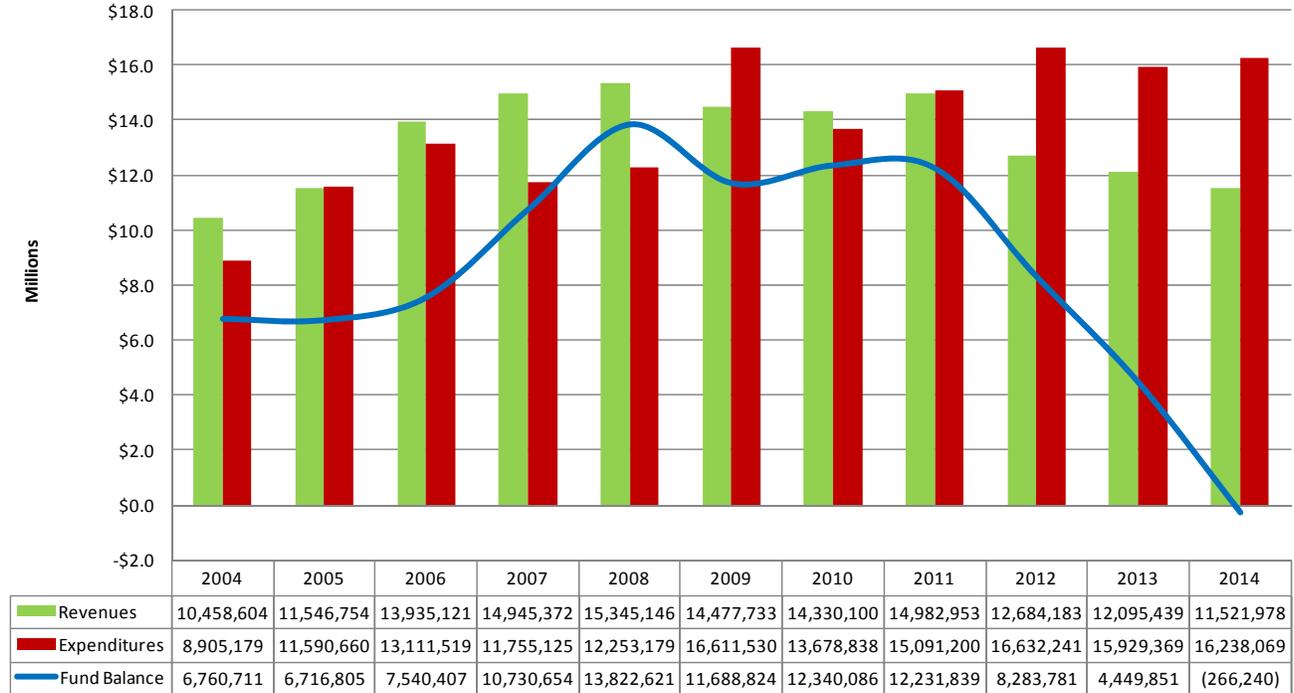
Source: Charter Township of Shelby

The Fire Department is certainly an essential service area. However, it is also an operating area where costs are rising at a rapid rate. With round-the-clock staffing a requirement, personnel costs comprise a significant portion of overall expenditures – expected to total more than \$9.3 million in FY 2009. As discussed in the following pages, department wages and (particularly) benefits are very generous, with costs associated with retirement benefits, health care and other offerings predicted to be increasing yearly at double digit rates. Essentially, the balance between incoming revenues and outgoing expenditures will soon become unsustainable.

Related to this point, we have recently completed a five-year budget forecast for Shelby Township. Using relatively modest and defensible assumptions regarding future revenues and expenditures, we have illustrated the likely future financial condition of the Township under current spending trends. The results are not positive, and indicate the need for significant cost reduction over the coming five-year period.

In regard to the Fire Department, this need is particularly pressing. As seen in the following Exhibit 2, our forecast of future financial condition predicts a very serious negative trend, resulting in the depletion of the rather sizable Fire Fund balance by FY 2014. The major causes of this fiscal imbalance are the continuing depression of real estate values (the Fire Fund’s primary revenue source) coupled with a continued increase in Fire Department benefit areas such as health care, retiree health care, firefighter pensions and others.

Exhibit 2
Shelby Charter Township
Fire Fund Forecast
Revenues, Expenditures and Fund Balance



With such a negative trend as a backdrop we have fashioned our evaluation of the Fire Department to identify any possibly revenue increases as well as any costs that can be avoided. Due to the high costs associated with personnel and equipment, much of the analysis has inevitably focused on possible cost reduction in these areas. However, we have also been mindful of the important emergency functions and role of the Fire Department and have made every effort to avoid compromising these important services – while also recognizing that the Fire Department must operate within its means.

METHODOLOGY AND ORGANIZATION OF THE REPORT

In conducting the study, we have spent significant time gathering and analyzing data and information. Interviews conducted during the study have included:

- Most fire command officers
- Firefighters (individually and by confidential survey)
- Board members
- Department heads that interact with the Fire Department
- Fire Chiefs in some surrounding communities
- Equipment vendors
- Ambulance company representatives
- GIS service providers to the Township

Based on the results of these interviews as well as data collected, we have developed this final report document. The report is organized as follows:

- Section II contains a complete accounting of our findings and conclusions regarding the operations of the Shelby Township Fire Department (SFLD).
- Section III contains the recommendations resulting from our findings and conclusions.

SUMMARY OF RECOMMENDATIONS

Recommended actions and cost impact (where applicable) can be briefly summarized as follows.

- The elimination of two positions is suggested for an estimated cost savings of **\$188,358**. The Fire Department currently has two vacant positions; consequently downsizing by two positions will not require any job losses. The two positions are both administrative in nature, consequently no firefighting and ambulance staffing will be lost.
- A reorganization of the fire prevention division is recommended with improved workload planning and records management.
- A plan is presented to improve the quality of information related to vehicle replacement. It is also suggested that SFLD's vehicle depreciation schedules be lengthened. Estimated cost savings over a nine-year period are **\$772,847**.
- A recommendation is made to use a different ambulance type in the future. Cost savings associated with moving to these Type 3 ambulances is estimated at **\$50,000** per vehicle.
- It is recommended that administrative drive-home privileges be ended at a cost savings of **\$13,282** and likely much more.
- A recommendation is made to raise ambulance rates and end the practice of "writing off" resident charges and insurance co-pays. Estimated revenue enhancement is **\$275,000**.
- It is suggested that SFLD continue to pursue a lower contracted billing rate with a possible estimated cost savings of **\$18,227-\$22,832**.
- It is suggested that the Township Supervisor request an ISO review as a means of possibly lowering the PPC rating from 5 to 4 – with (possibly) a decrease in community insurance rates.
- It is suggested that the Township acquire property for future construction of a new Station 5.
- It is suggested that the Township focus on additional cost reductions through negotiation and modification of some generous employee compensation offerings.

* * * * *

In the following section we present our findings and conclusions.

SECTION II

OPERATIONAL FINDINGS AND CONCLUSIONS

SECTION II

FINDINGS AND CONCLUSIONS

In this section of the report we summarize the findings and conclusions resulting from our review of the Shelby Township Fire Department. To facilitate review, this information is organized in a series of subsections as follows:

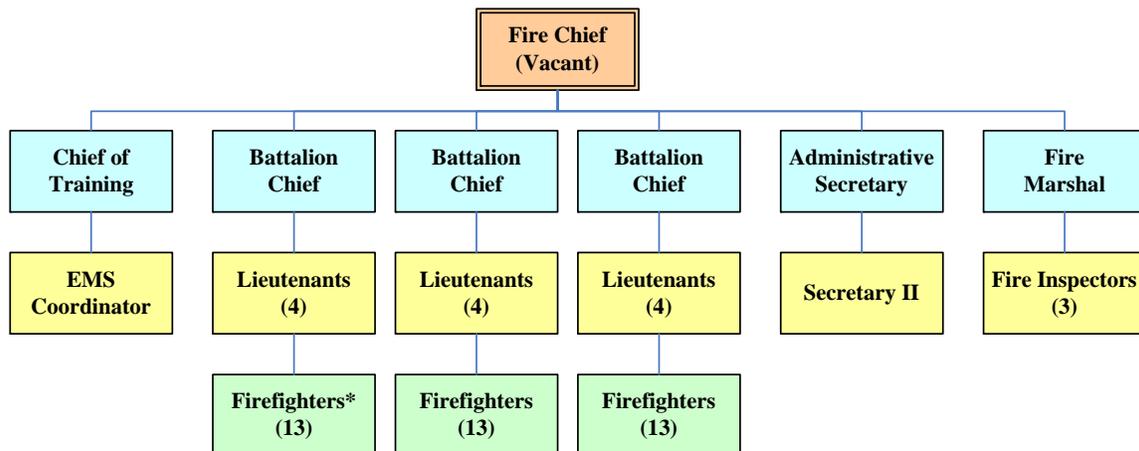
- A. Overview of Fire Department Operations
- B. Emergency Response – Overall and By Station House
- C. Training and Clerical Functions
- D. Fire Prevention
- E. Apparatus
- F. Ambulance Fees
- G. ISO.

Each is presented below.

A. OVERVIEW OF FIRE DEPARTMENT OPERATIONS

The Shelby Township Fire Department (STFD) is a full service fire agency providing fire suppression, prevention and ALS-level emergency medical response and transport. As seen in Exhibit 3, STFD is typically staffed by 61 career firefighters and 2 clerical personnel. Two positions are currently vacant reducing total firefighting personnel to 59.

Exhibit 3
Shelby Township Fire Department
Current Organization



*One Firefighter position vacant in addition to the Fire Chief
Source: Shelby Township Fire Department

Key findings regarding overall operations include the following:

1. OVERALL COMMAND APPEARS TO BE EFFECTIVE AND POTENTIALLY INNOVATIVE.

Following the recent retirement of the Fire Chief, the Chief of Training assumed the Fire Chief position on an interim basis. As a tested candidate for the position, it is quite possible that this individual may be promoted to Fire Chief on a permanent basis. Support for the interim Fire Chief appears to be strong among all segments of the department. As evidence of this, we conducted a confidential survey of departmental personnel and received nearly 50 responses. The leadership qualities of the interim Fire Chief were cited repeatedly in the responses, as was the high level of satisfaction with his command performance.

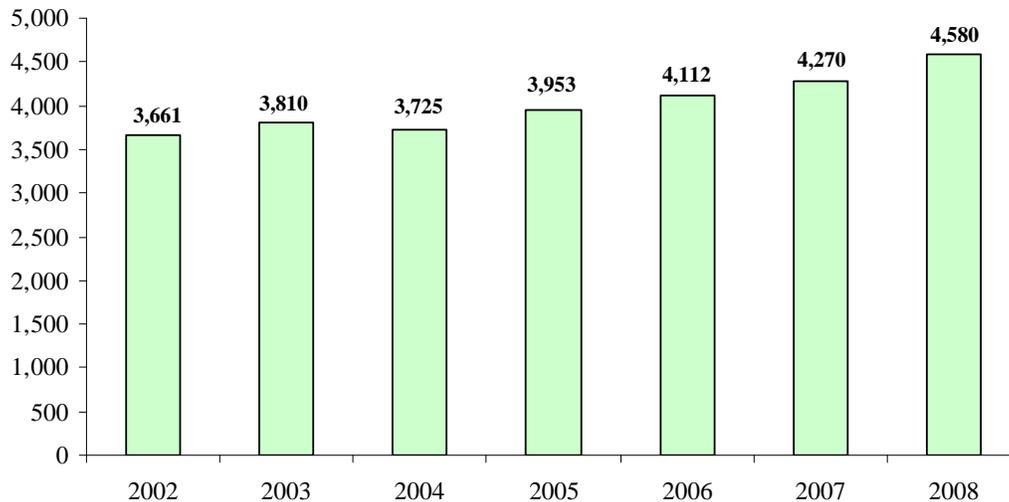
The interim Fire Chief appears to be moving positively on a number of fronts, including the continued upgrade of training programs and documentation, automation of various records and activities, analysis of issues such as vehicle maintenance and capital costs and the Station 1 renovation and expansion project. In this sense, the Township appears well served by his efforts and output. From our perspective, the interim Fire Chief appears innovative and willing to move beyond the status quo – qualities that will be necessary as the Fire Department is challenged to operate in a more stringent financial environment.

2. STFD'S EMERGENCY RESPONSE WORKLOAD HAS INCREASED ANNUALLY AS THE TOWNSHIP HAS GROWN. FROM AN OVERALL PERSPECTIVE, SERVICE QUALITY APPEARS HIGH.

Exhibit 4 summarizes annual call volume for the period 2002-2008. As seen in the exhibit, call volume has increased in every year over this time period. Primarily, this can be attributed to the continued development of the Township during this period. However, it also illustrates the growing trend among fire departments toward increased activity in emergency medical services provision.

As an example, STFD responded to a reported 4,580 total calls for service in 2008. Of this total, 3,795 were medical in nature – 83% of total calls. Essentially, STFD, like most full-time fire agencies, is becoming increasingly engaged in ambulance-related workload. With the advent of improved building codes, fire suppression has become a less frequent (though no less important) activity. Conversely, ambulance service represents a growing percentage of total emergency workload, as well as an increasingly necessary service for an aging “baby boomer” population.

Exhibit 4
Shelby Township Fire Department
Historic Calls for Service



Source: Shelby Township Fire Department 2008 Annual Report

In regard to ambulance services, Shelby Township was, with Harrison Township, the first communities to offer ambulance transport in Macomb County. STFD has provided ambulance transport services to its residents since 1976, now at an Advanced Life Support level. With this level of ambulatory service, STFD has a decidedly different service model than neighboring Clinton Township or Sterling Heights – career departments that provide only medical first response. Other neighboring communities like Utica, provide ambulance transport service, but do so with paid-on-call firefighters/medics or a combination of full-time and paid-on-call. Essentially, STFD is a unique service model within its contiguous fire service area.

STFD appears to provide ambulance service at a high level of competency. The service is provided at a staffing/certification level that is higher than the protocol established by the Macomb County Medical Control Authority (MCA) (i.e. one paramedic and one emergency medical technician), with STFD’s ambulances being manned by two paramedics. MCA comments positively on the department, citing STFD’s involvement on the Pre-Hospital and Pharmacy Committees, the interim Fire Chief’s past chairmanship of the MCI Committee and the absence of any active, open complaints or past complaints on ambulatory services. Representatives of surrounding fire agencies are similarly complimentary regarding service provision, mutual aid and general cooperation.

Operating from four stations, STFD also appears to provide a relatively rapid response. Average response time (dispatch to arrival) for the overall service area averaged 5.20 minutes in 2008, generally consistent with the National Fire Protection Association’s (NFPA) recommended standard of four minutes for travel, and an additional minute for turn out time.

Summarily, from professional and service perspectives, Shelby Township residents appear to be well served by their Fire Department.

3. *STFD'S COST-OF-SERVICE APPEARS HIGH IN COMPARISON TO OTHER SIMILAR-SIZED TRANSPORT AGENCIES.*

As previously mentioned, most of STFD's neighboring agencies do not have the same operating model. Since these departments differ from STFD on staffing composition or service scope, they are not reasonable "benchmark" agencies to use for comparative purposes.

To compare STFD's cost and operating practices, we identified ten agencies that, on average, provide a reasonable service and population profile. One, St. Clair Shores, refused to participate in a benchmark survey. The other nine form the basis for comparative findings and conclusions throughout this report.

In regard to fire department costs, Exhibit 5 compares per capita cost between STFD and an average of the eight benchmark agencies. In each case, capital costs have been removed from the budgetary total – the numbers presented in the exhibit reflect net operating costs as reported by the fire agencies. In regard to Shelby, all capital costs, and billing and ambulance fee write-off line-items have been removed as well as a \$595,000 expense for retiree health care prefunding. In regard to the latter, this is a budgetary line-item that could legitimately be consider an operating expense but may not be present in the benchmark agencies' budgets. Hence, it was removed from STFD's total.

Exhibit 5
Shelby Township Fire Department
Comparison of Per Capita Cost

| Fire Agency | Population Served | 2009 Operating Budget | Cost Per Capita |
|--|-------------------|-----------------------|-----------------|
| Shelby Township Fire Department | 71,277 | \$10,801,288 | \$152 |
| Canton Township Fire Department | 86,852 | \$10,744,000 | \$124 |
| Livonia Fire Department | 93,931 | \$11,400,000 | \$121 |
| Meridian Township Fire Department | 39,938 | \$4,694,850 | \$118 |
| Roseville Fire Department | 46,977 | \$5,838,879 | \$124 |
| Royal Oak Fire Department | 58,229 | \$9,733,275 | \$167 |
| Southfield Fire Department | 81,456 | \$15,060,770 | \$185 |
| Taylor Fire Department | 62,374 | \$7,798,700 | \$125 |
| Waterford Township Fire Department | 73,863 | \$9,659,930 | \$131 |
| West Bloomfield Township Fire Department | 64,600 | \$7,342,365 | \$114 |
| AVERAGE OF OTHER AGENCIES | 67,580 | \$9,141,419 | \$134 |

Population estimates from Sperling - 2009

Capital costs have been removed from each fire budget to provide a uniform operating budget total

Source: Rehmann Robson Survey

As seen in the exhibit, STFD’s net operating cost is roughly 13% above the average of the benchmark agencies. If Southfield, an obvious outlier is removed, the differential increases to **19%** - a significant level of expenditure. Related to this, a primary objective of this report is to reduce STFD’s operating cost to a more cost-efficient level while assuring continuation of the high quality emergency service noted above. This issue is addressed repeatedly in the following subsections as various opportunities for cost reduction (or revenue enhancement) are examined.

B. EMERGENCY RESPONSE – OVERALL AND BY STATION HOUSE

As seen in the previous Exhibit 3, STFD is organized into three battalions for emergency response. Each battalion is staffed by 18 firefighters, including five command officers (one firefighter position is currently vacant). Firefighting staff assigned to a battalion work a 24-hour shift that requires nine or ten work days in every 28 day cycle.

Key finding regarding emergency response include the following:

1. CURRENT SHIFT STAFFING LEVELS PROVIDE AN ADEQUATE LEVEL OF DAILY COVERAGE.

As mentioned above, each of the three battalions is staffed with 18 firefighting personnel. Departmental policy limits scheduled off-time to four individuals on any given day to

assure adequate shift strength. In regard to the minimum manning level per shift, the former Fire Chief established this number at 10 – with call-in required to maintain this minimum, when necessary. However, call-in was never required for shift staffing shortage in 2008, the last full calendar year of his tenure (only command shortages).

In regard to actual day-to-day staffing, Exhibit 6, summarizes the entire calendar year of 2008. As seen in the exhibit, shift staffing averaged 14.4 firefighters per day in 2008. Incidents of 10 or 11 staff on duty were relatively rare, with most days at 13 or above.

Exhibit 6
Shelby Township Fire Department
Firefighter/Battalion Staffing By Day - 2008

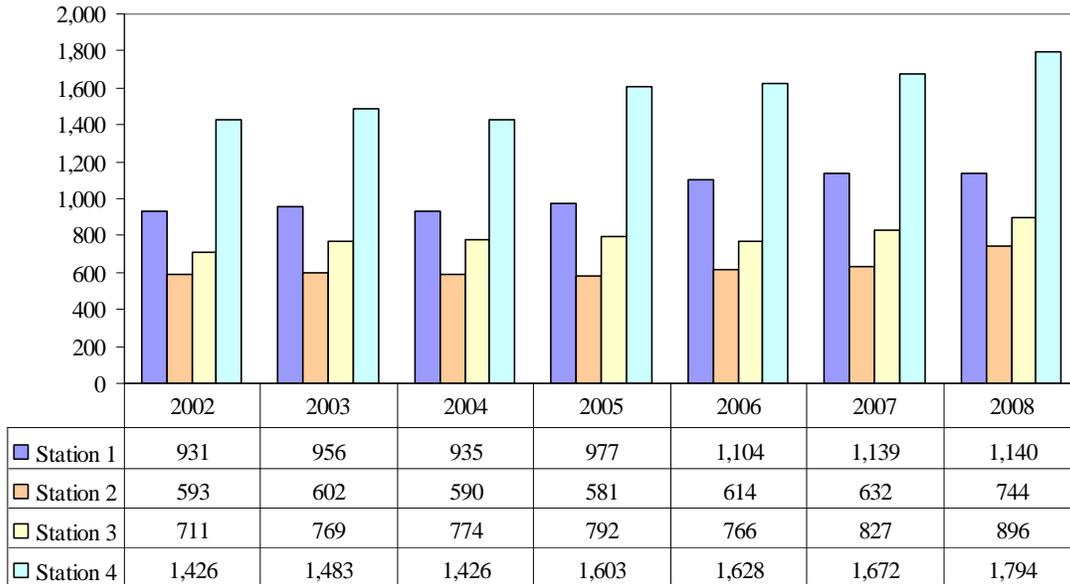
| Day of Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Average Per Day |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----------------|
| 1 | 10.0 | 18.0 | 13.8 | 15.0 | 13.0 | 14.0 | 15.0 | 14.0 | 14.0 | 15.3 | 16.8 | 15.5 | 14.5 |
| 2 | 12.8 | 11.0 | 14.0 | 15.8 | 12.8 | 14.0 | 13.0 | 10.0 | 15.0 | 17.0 | 14.5 | 16.5 | 13.9 |
| 3 | 18.0 | 16.0 | 16.0 | 16.0 | 13.8 | 14.3 | 15.0 | 16.5 | 16.0 | 16.5 | 18.0 | 18.0 | 16.2 |
| 4 | 12.8 | 14.5 | 17.0 | 12.3 | 12.0 | 13.3 | 12.0 | 14.0 | 17.8 | 13.5 | 16.8 | 16.8 | 14.4 |
| 5 | 16.5 | 15.0 | 14.8 | 14.0 | 12.0 | 13.5 | 13.0 | 16.0 | 15.5 | 12.0 | 16.8 | 17.0 | 14.7 |
| 6 | 15.0 | 11.8 | 15.0 | 14.5 | 13.0 | 13.8 | 13.0 | 17.5 | 15.0 | 17.8 | 17.5 | 15.0 | 14.9 |
| 7 | 17.5 | 14.5 | 13.5 | 15.0 | 11.8 | 13.0 | 13.5 | 14.3 | 12.3 | 14.8 | 15.0 | 15.0 | 14.2 |
| 8 | 13.3 | 15.0 | 15.0 | 16.0 | 12.8 | 12.0 | 16.5 | 16.0 | 14.5 | 15.5 | 16.0 | 16.8 | 15.0 |
| 9 | 13.0 | 12.5 | 15.0 | 15.8 | 12.5 | 15.8 | 14.0 | 14.8 | 17.0 | 14.5 | 15.0 | 16.3 | 14.7 |
| 10 | 14.0 | 16.8 | 14.5 | 14.5 | 13.0 | 13.0 | 14.5 | 13.5 | 14.0 | 14.0 | 16.0 | 17.5 | 14.6 |
| 11 | 12.3 | 10.8 | 15.5 | 14.8 | 11.8 | 17.0 | 13.8 | 15.0 | 15.5 | 13.5 | 16.8 | 16.0 | 14.4 |
| 12 | 16.8 | 15.5 | 12.0 | 13.0 | 14.8 | 13.8 | 12.5 | 13.0 | 16.0 | 13.0 | 15.8 | 16.3 | 14.4 |
| 13 | 13.0 | 13.5 | 15.0 | 14.8 | 12.0 | 14.5 | 16.0 | 14.0 | 14.8 | 16.5 | 17.4 | 14.0 | 14.6 |
| 14 | 17.0 | 13.8 | 13.8 | 15.5 | 12.0 | 10.0 | 13.0 | 13.3 | 14.3 | 15.8 | 15.5 | 16.8 | 14.2 |
| 15 | 15.0 | 14.8 | 16.0 | 13.0 | 12.5 | 14.3 | 17.0 | 14.5 | 15.3 | 18.0 | 13.3 | 14.5 | 14.9 |
| 16 | 17.0 | 12.0 | 13.0 | 16.8 | 13.3 | 16.8 | 16.0 | 12.0 | 17.5 | 15.0 | 11.0 | 15.5 | 14.7 |
| 17 | 13.5 | 12.5 | 13.0 | 16.0 | 11.3 | 15.5 | 16.3 | 14.8 | 13.8 | 15.0 | 13.0 | 15.0 | 14.1 |
| 18 | 13.0 | 14.0 | 15.0 | 12.0 | 12.0 | 17.5 | 16.0 | 15.0 | 16.0 | 13.5 | 14.5 | 15.5 | 14.6 |
| 19 | 10.5 | 13.5 | 14.8 | 11.0 | 13.3 | 13.0 | 14.0 | 16.5 | 11.8 | 14.0 | 17.8 | 16.3 | 13.9 |
| 20 | 13.0 | 11.8 | 15.0 | 13.8 | 15.0 | 14.5 | 16.8 | 15.0 | 13.0 | 16.0 | 14.5 | 14.8 | 14.4 |
| 21 | 14.8 | 14.8 | 14.5 | 15.0 | 14.3 | 12.5 | 13.0 | 12.8 | 13.0 | 17.0 | 17.5 | 16.0 | 14.6 |
| 22 | 13.0 | 14.3 | 12.0 | 12.3 | 13.8 | 13.8 | 15.8 | 15.8 | 15.5 | 14.0 | 11.0 | 16.8 | 14.0 |
| 23 | 16.8 | 13.0 | 12.0 | 15.8 | 14.0 | 13.8 | 14.5 | 14.0 | 15.5 | 14.5 | 16.0 | 16.5 | 14.7 |
| 24 | 13.0 | 11.5 | 13.8 | 11.5 | 11.0 | 15.8 | 12.8 | 16.0 | 16.3 | 14.0 | 16.0 | 12.3 | 13.7 |
| 25 | 16.0 | 14.5 | 14.0 | 15.0 | 12.0 | 14.5 | 14.0 | 16.0 | 18.0 | 13.5 | 16.5 | 12.0 | 14.7 |
| 26 | 12.0 | 15.8 | 13.8 | 14.3 | 13.0 | 15.0 | 12.0 | 17.3 | 11.0 | 13.0 | 15.5 | 12.5 | 13.8 |
| 27 | 14.5 | 14.8 | 15.0 | 14.0 | 14.0 | 12.0 | 13.5 | 16.0 | 13.5 | 16.0 | 12.8 | 13.8 | 14.0 |
| 28 | 13.3 | 14.8 | 12.5 | 14.5 | 14.3 | 11.0 | 16.0 | 14.5 | 16.3 | 16.0 | 16.8 | 15.0 | 14.6 |
| 29 | 15.0 | 13.0 | 14.5 | 11.5 | 14.5 | 13.0 | 17.0 | 12.8 | 15.8 | 16.0 | 15.0 | 15.0 | 14.4 |
| 30 | 17.5 | - | 15.5 | 11.0 | 12.0 | 11.8 | 14.5 | 14.8 | 16.5 | 14.0 | 16.3 | 15.0 | 14.4 |
| 31 | 15.0 | - | 12.0 | - | 12.5 | - | 13.0 | 13.0 | - | 14.5 | - | 11.5 | 13.1 |
| Average Per Month | 14.4 | 13.9 | 14.2 | 14.2 | 12.9 | 13.9 | 14.4 | 14.6 | 15.0 | 15.0 | 15.5 | 15.3 | 14.4 |

Source: Shelby Township Fire Department

In regard to the adequacy of these staffing levels, STFD’s practice is to assign its staff to mirror likely service need. As previously mentioned, ambulance responses comprised 83% of total call volume in 2008; consequently, staffing the station houses that have the

greatest ambulance call volume is a top priority. In regard to call volume, Exhibit 7 illustrates historic calls by station house.

Exhibit 7
Shelby Township Fire Department
Historic Calls for Service by Station House



Source: Shelby Township Fire Department 2008 Annual Report

As seen in Exhibit 7, Station 4 accounts for a much heavier call volume than the other stations. Hence, it receives more priority in staffing decisions. Station 1 staffing is also prioritized. In addition to its call volume, Station 1 also houses the equipment pieces that would be required for a major fire suppression incident.

In regard to actual deployment, Exhibit 8 illustrates how staff is assigned on a daily basis. As seen in the exhibit, having ten personnel on-duty allows STFD to assign two firefighters to each of the satellite stations while retaining four firefighters at Station 1. As the number of available firefighters increases, they are first deployed to Station 4 to increase staffing to three and then four. In this situation, Station 4 is positioned to staff an ambulance and back-up unit. An elaborate system for back-up for fire and medical response among all station houses is also operational to assure adequate movement of resources for emerging service needs.

Exhibit 8
Shelby Township Fire Department
Manpower Disbursement

| # of Personnel Available | Station 1 | Station 2 | Station 3 | Station 4 |
|--------------------------|-----------|-----------|-----------|-----------|
| 10 | 4 | 2 | 2 | 2 |
| 11 | 4 | 2 | 2 | 3 |
| 12 | 4 | 2 | 2 | 4 |
| 13 | 5 | 2 | 2 | 4 |
| 14 | 4 | 3 | 3 | 4 |
| 15 | 4 | 3 | 3 | 5 |
| 16 | 5 | 3 | 3 | 5 |
| 17 | 5 | 3 | 3 | 6 |
| 18 | 5 | 4 | 4 | 5 |

Source: Shelby Township Fire Department

In regard to staffing adequacy, a level of 13 or 14 firefighters on duty is fairly typical on any given day and should provide adequate staffing for ongoing service needs. Obviously, more staffing would always be preferable to face the “what if” that is the constant unknown in the fire service. But no community, including Shelby Township, can justify the cost to unreasonably “staff-up” for the unknown. At current daily staffing levels, STFD has adequate resources to operationalize the major equipment pieces necessary for a ground scene. Coupled with mutual aid, administrative staff during the weekdays and the ability to call-in additional resources, STFD is fairly staffed to meet a reasonable fire threat and provide timely ambulance and fire response. This latter point is addressed in the following finding.

In surveying the benchmark fire agencies, we have also solicited information regarding staffing levels. This information is present in Exhibit 9.

**Exhibit 9
Shelby Township Fire Department
Comparison of Staffing**

| Fire Agency | Number of Personnel | | | |
|------------------------------------|---|--------------------|------------------------------|----------|
| | Total Command Officers Or Fire Prevention | Total Firefighters | Total Full-Time Career Staff | Clerical |
| Shelby Township Fire Department | 22 | 39 | 61 | 2 |
| Canton Township Fire Department | 17 | 45 | 62 | 2 |
| Livonia Fire Department | 29 | 56 | 85 | 3 |
| Meridian Township Fire Department | 18 | 23 | 41 | 1 |
| Roseville Fire Department | 16 | 27 | 43 | 2 |
| Royal Oak Fire Department | 23 | 37 | 60 | 1.5 |
| Southfield Fire Department | 17 | 92 | 109 | 3 |
| Taylor Fire Department | 29 | 32 | 61 | 2 |
| Waterford Township Fire Department | 20 | 48 | 68 | 3 |
| AVERAGE OF OTHER AGENCIES | 21 | 45 | 66 | 2 |

Note: Shelby Township staffing total includes two vacant positions.

Waterford Township Fire Department also has a paid-on-call contingent.

West Bloomfield Township reports that Fire Department is undergoing restructuring - staffing numbers not provided.

Source: Rehmann Robson Survey

As seen in Exhibit 9, the average of the benchmark fire agencies is higher than the staffing total for STFD. However, the Southfield Fire Department significantly skews the average with its extraordinarily high number of firefighters. **If this outlier is removed, the average of the sample drops to 60 – a number very comparable to STFD’s budgeted staffing total of 61.**

2. *THERE IS A DISPARITY IN RESPONSE TIME BETWEEN STATION HOUSES THAT WILL BE DIFFICULT AND EXPENSIVE TO CORRECT.*

As previously discussed, STFD recorded a response time of 5.20 minutes for overall operations in 2008. This is generally consistent with the NFPA 1710 standard of four minutes for career fire departments for travel time (note: and one additional minute for station turn out).

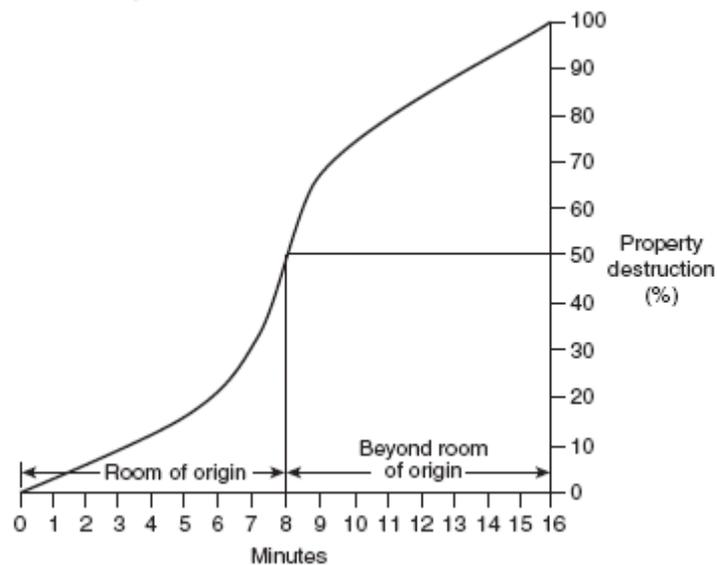
As an explanation to the layman, the National Fire Protection Association (NFPA) publishes standards and guidelines for fire operations that are developed by committees comprised of government officials, fire professionals, representatives of professional organizations, industry representatives and others. NFPA’s standards for a career department, for fire suppression and emergency medical call responses, are as follows:

- Four minutes or less for the arrival of the first arriving engine company at a fire suppression incident and one minute for turn out for a total of five minutes
- Four minutes or less for the arrival of a unit with First Responder capability at an emergency medical incident and one minute for turn out for a total of five minutes.
- Ninety percent compliance with the above standards.

NFPA standards are developed by committee consensus – not rigorous scientific investigation. However, the standards established for fire and emergency medical response are based on generally accepted risk factors.

For fire suppression, the standard is based on the fire propagation curve, illustrated in Exhibit 10.

Exhibit 10
Fire Propagation Curve



Source: Fire Protection Handbook, 18th Ed.,

National Fire Protection Association

As seen in Exhibit 10, the Fire Propagation Curve illustrates the effect of time and property destruction percentage on a free burning property fire. Extension of the fire beyond the room of origin begins approximately six minutes after ignition, and flashover (i.e. simultaneous ignition of all flammable material) occurs within eight to ten minutes. Studies by the National Institute of Standards and Technology contend that flashover can occur in some modern rooms with low ceilings and plastics in two to four minutes.

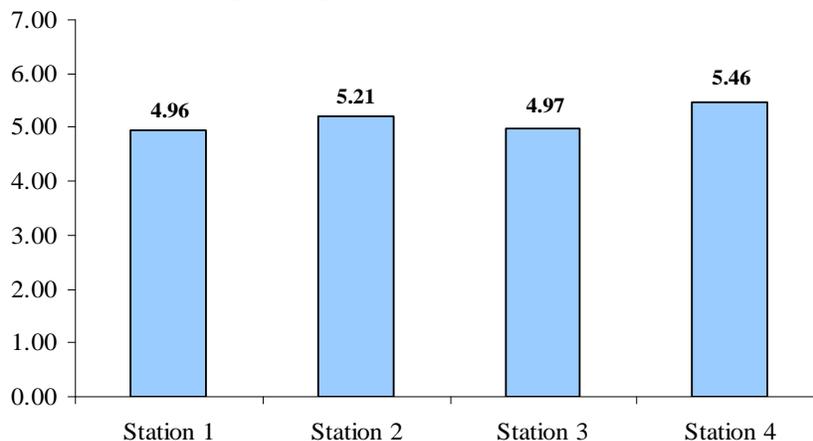
For emergency medical response, the standard is based on the American Heart Association's 2005 Guidelines for CPR and Emergency Cardiac Care.¹ These guidelines emphasize the importance of shortening response time to suspected cardiac arrest patients. More specifically, if brain tissues are deprived of oxygen, they begin to die within four to six minutes.

Related to this, the American College of Emergency Physicians has noted that for every minute of cardiac arrest, the chance of survival decreases up to 10 percent.² Their recommendation is that EMS systems should attempt to achieve travel times of 3-4 minutes for Medical First Response as a means of minimizing negative impacts.

The NFPA committees considered the above and other data in recommending the aggregate five minute standard for dispatch to arrival. It should be noted, however, that while NFPA's standards appear reasonable, they are not universally accepted by public officials and professional organizations. Fire department costs are an ongoing concern and some feel that the standards are too aggressive. However, to our knowledge, the NFPA's standards are the most definitive available, and as such, are generally accepted as the defacto benchmark for emergency response. For this reason, our evaluation uses the two NFPA 1710 standards (turn out time and travel time) as the benchmark for our analysis of response time and facility location for the Shelby Township Fire Department.

As noted, STFD appears to be very close to the NFPA standard on an overall basis. Further, as seen in the following Exhibit 11, this is also the case if response time is measured by station house – though less so for Station 4.

Exhibit 11
Shelby Township Fire Department
Average Response Time by Fire Station



Source: Shelby Township Fire Department 2008 Annual Report

¹ AHA, 2005. Highlights of the 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Currents in Emergency Cardiovascular Care*. 16(4), 1-25.

² Pratt, F.D. & Overton, J. (2005). Ground Transport Ambulances. In Brennan, J.A. & Krohmer, J.R. [Eds]. American College of *Emergency Physicians Principles of Emergency Medical Services Systems*, [3rd Ed.], Boston: Jones and Bartlett Publishers.

In fact, response time issues have been noted within Station 4's workload. The reason for this can best be explained with the help of Figure A; a GIS map illustrating station house location.

As seen in Table A, STFD divides the Township into thirty-six geographic sections for purposes of planning and service reporting. Each of the four stations is located near the center of its respective service area.

However, in the case of Station 4, constructed in the early 1990's, past Township officials did not adequately consider future growth. The station house was sited near 23 Mile Road – too far north to account for subsequent growth in the southeast portion of the Township. At present, Station 4 is responsible for the majority of service calls that are east of M-53, from Hall Road to 26 Mile Road – a much greater area than that serviced by any of the other station houses, and an area that has rapidly developed – particularly to the south.

The result of this miscalculation can be seen in Exhibit 12, a breakdown of service calls and response times for each of the thirty-six geographic divisions represented in the Table A map. Most notably, response times are approaching seven minutes in 36, a densely settled area bounded by Hall Road, Schoenherr, Hayes and 21 Mile Road. The high level of call volume in this area serves to exacerbate the problem and further growth will only serve to increase traffic congestion and further increase response times.

Table A
Shelby Township Fire Department
Station House Locations

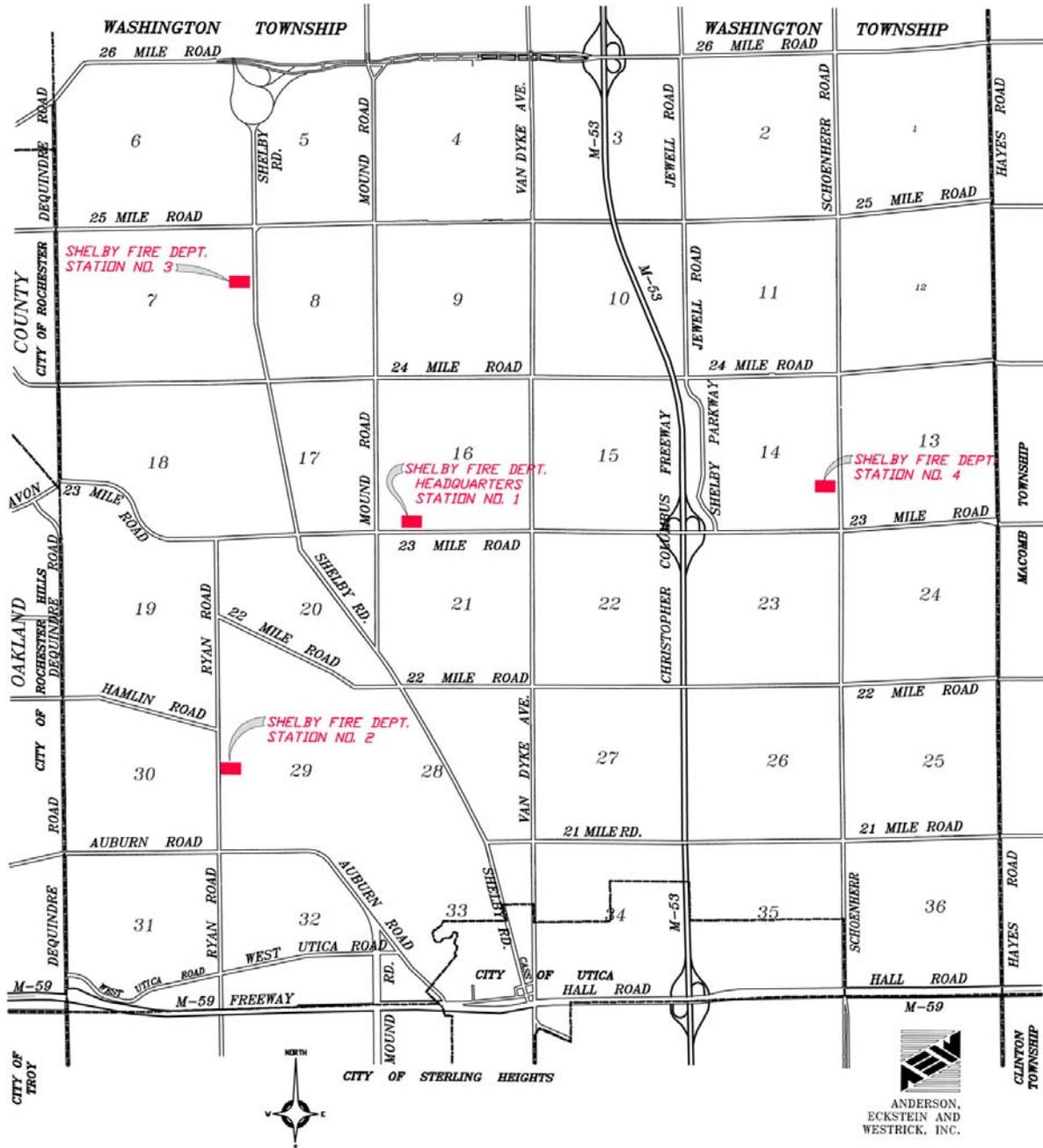


Exhibit 12
Shelby Township Fire Department
Service Calls and Response Time by Area

| Section # | Service Calls | Average Response Time | | Section # | Service Calls | Average Response Time |
|-----------|---------------|-----------------------|--|-----------|---------------|-----------------------|
| 1 | 14 | 6.14 | | 19 | 8 | 4.5 |
| 2 | 21 | 5.76 | | 20 | 120 | 4.08 |
| 3 | 106 | 6.27 | | 21 | 52 | 4.3 |
| 4 | 116 | 5.28 | | 22 | 124 | 4.41 |
| 5 | 138 | 4.33 | | 23 | 184 | 5.24 |
| 6 | 67 | 5.24 | | 24 | 313 | 4.77 |
| 7 | 136 | 5.32 | | 25 | 261 | 5.63 |
| 8 | 141 | 3.97 | | 26 | 116 | 5.44 |
| 9 | 75 | 4.48 | | 27 | 119 | 5.87 |
| 10 | 88 | 6.03 | | 28 | 116 | 4.72 |
| 11 | 60 | 5.09 | | 29 | 91 | 4.31 |
| 12 | 75 | 5.6 | | 30 | 69 | 5.39 |
| 13 | 69 | 4.09 | | 31 | 158 | 5.35 |
| 14 | 85 | 3.29 | | 32 | 264 | 5.39 |
| 15 | 198 | 4.79 | | 33 | 50 | 5.54 |
| 16 | 101 | 3.96 | | 34 | 41 | 5.88 |
| 17 | 133 | 4.1 | | 35 | 77 | 5.96 |
| 18 | 110 | 5.59 | | 36 | 533 | 6.54 |

Pink indicates sections serviced by Station 4. Also portions of 3 and 10, some small adjustments could be made for 100% accuracy
 Source: Shelby Township Fire Department

The problem could have been avoided by more closely linking planning and development efforts to future service need. In this sense, station house placement would have been viewed from a macro perspective with the evaluation of options for maximizing future coverage with the fewest number of properly located station houses. Since this approach was not taken, the Township will experience significant cost if the problem is to be remedied.

More specifically, the ideal solution would be to build a new station house in the vicinity of 21 Mile and Schoenherr (or similar location). However, in this event, it would also be necessary to keep Station 4 operational to serve the more central/northern areas of the district. Thus, new firefighters and equipment would be needed for the new Station 5. If Station 5 was only staffed with a minimum of two firefighters per shift, roughly nine new hires would be required. In this situation, staffing for the new facility would be \$650,000- \$1,000,000 per annum, as well as the costs of land acquisition and facility construction, facility maintenance and upkeep and vehicle costs. In the current fiscal environment, this level of outlay would prove problematic.

What would be ideal is a “stopgap” measure that would allow the Township to study the problem, evaluate remedial options and costs and proceed at a pace that is consistent with fiscal realities. As an example, a site could be purchased in the near future to be developed at a later point-in-time when the economy recovers and the problem becomes more pressing. The property, if purchased in the current, depressed real estate market could potentially be acquired at a reasonable cost.

A “stopgap” measure could then be employed to assure timely service response. Related to this, we first considered the possibility of an automatic aid agreement with another fire agency. In this case, one logical choice would be Sterling Heights, with a station house located at Schoenherr and 19 Mile. However, the Sterling Heights Fire Chief estimates that response time would be more than six minutes to the mall area due to traffic congestion. Also, Sterling Heights is not a transport operation.

Another option could be the Utica Fire Department, an ALS transport agency. However, this is a paid-on-call fire service that might not be able to service the level of workload that might be required. However, this is an option which should be examined. The departments have a history of camaraderie and could potentially work together jointly to find a solution.

Another option might be to contract with a private ambulance company to maintain all or a section of 36 and/or other areas. Medstar, now servicing neighboring Macomb Township could have interest in such an arrangement.

This is not to suggest that the Township should consider outsourcing the ambulance service. Rather, that an arrangement may be possible that would benefit both parties. In a time of fiscal challenge, no possible solutions should be “off the table”.

C. TRAINING AND CLERICAL FUNCTIONS

In this subsection we examine select administrative functions, including clerical and training. The fire prevention division is examined in a separate subsection.

Key findings include the following:

1. THE TRAINING FUNCTION HAS BEEN UPGRADED SIGNIFICANTLY.

In 2008, the current Chief of Training (interim Fire Chief) and EMS Coordinator assumed their positions following the retirement of two senior officers. By all accounts, they inherited a training program that was deficient in many regards, including training content, execution and records management.

Since that point-in-time, the Chief of Training and EMS Coordinator have labored to create and implement a quality training program. This has included the development of new programs and curriculum, the institution of a consistent training schedule and

automated documentation of training records. Numerous courses have been introduced and the focus of training has gradually shifted from reactive to a more preemptive approach in which fire personnel are pre-approved to attend training sessions. The Chief of Training also puts out a weekly training packet for the three shifts that provides an overview of the training for that week with an outline to assure that all training is consistent across the shifts.

The bulk of training is performed in-house with minimal outside contracting (although some training may be hosted by another fire department). The Chief of Training is certified as a Fire Service Instructor and the EMS Coordinator will soon be. The EMS Coordinator is certified as a Paramedic Instruction Coordinator with primary responsibility to assure that all paramedics complete their continuing education and that the department, more generally, adheres to state and MCA guidelines regarding emergency medical services.

The two individuals noted above appear to have done a fine job in upgrading an area of deficiency that is critical to fire suppression performance, patient care and statutory compliance. With the Chief of Training assuming the role of interim Fire Chief, a larger share of the workload has fallen to the EMS Coordinator. As discussed in the following findings greater reliance on one individual may be the most efficient future course for the department.

2. *MANY OF THE BENCHMARK FIRE AGENCIES FUNCTION WITH ONE OR FEWER DEDICATED TRAINING OFFICERS. STFD SHOULD ALSO CONSIDER THIS COURSE.*

As discussed above, the combined efforts of the Chief of Training and EMS Coordinator have had a positive impact on the training function. However, with a functioning system in place it is reasonable to assume that one dedicated command officer could maintain and direct the training function.

As seen in the following Exhibit 13, this is the case in all but one of the benchmark agencies surveyed for this study. With that one exception, these agencies maintain the training function with either one, or no dedicated training officer(s).

Exhibit 13
Shelby Township Fire Department
Comparison of Personnel

| Fire Agency | Number of Personnel | | | | | | |
|------------------------------------|---------------------|-----------------|-----------------------------|-------------------|------------------|------------------------|---|
| | Full-time | | | | | | |
| | Fire Chief | Assistant Chief | Fire Marshal and Inspectors | Training Officers | Battalion Chiefs | Other Command Officers | Total Command Officers Or Fire Prevention |
| Shelby Township Fire Department | 1 | 0 | 4 | 2 | 3 | 12 | 22 |
| Canton Township Fire Department | 1 | 0 | 4 | 0 | 3 | 9 | 17 |
| Livonia Fire Department | 1 | 0 | 3 | 1 | 2 | 22 | 29 |
| Meridian Township Fire Department | 1 | 1 | 2 | 2 | 2 | 10 | 18 |
| Roseville Fire Department | 1 | 0 | 2 | 1 | 2 | 10 | 16 |
| Royal Oak Fire Department | 1 | 1 | 2 | 0 | 0 | 19 | 23 |
| Southfield Fire Department | 1 | 0 | 6 | 1 | 3 | 6 | 17 |
| Taylor Fire Department | 1 | 1 | 3 | 1 | 4 | 19 | 29 |
| Waterford Township Fire Department | 1 | 1 | 3 | 0 | 3 | 12 | 20 |
| AVERAGE OF OTHER AGENCIES | 1.0 | 0.5 | 3.1 | 0.8 | 2.4 | 13.4 | 21.1 |

Note: Shelby Township staffing total includes two vacant positions

Waterford Township Fire Department also has a paid-on-call contingent.

West Bloomfield Township reports that Fire Department is undergoing restructuring - staffing numbers not provided

Source: Rehmann Robson Survey

Related to the above, we have contacted several of these agencies to gather more information regarding who performs these duties. Feedback includes the following:

- **Canton Township:** The two training officers/EMS Coordinators are Battalion Chiefs – serving the dual role of line supervisor and training/EMS coordination.
- **City of Livonia:** One training officer performs both functions.
- **City of Roseville:** One training officer performs both functions.
- **Waterford Township:** A Battalion Chief performs one function and a Firefighter/Engineer the other. The responsibilities are further complicated by the paid-on-call contingent that the department maintains.

Essentially, these departments, several of which are larger than STFD, have found a means of reducing staffing needs for the training function rather than dedicating a position exclusively to training. The responsibility is assigned to an existing command

officer. In this situation, unproductive firefighter “stand-by” time is reduced and cost efficiency is improved.

It is quite conceivable that there are corresponding costs incurred by these “alternative” approaches. A prerequisite may be required for the additional duties, or possibly more training must be contracted. Even if this is the case, it is highly unlikely that related costs would approach the estimated \$120,000 in salary and benefits required to fund STFD’s EMS Coordinator position on an annual basis.

This is not meant to denigrate the EMS Coordinator or minimize the importance of, or contributions, of the incumbent. However, at present there is a vacant command position (the Fire Chief). If this position is filled by another command officer (a high probability) there will be an opportunity to reduce command staffing by one without a staff reduction. Combining training duties into one position would create the opportunity to realize this reduction.

STFD will undoubtedly argue that one person could not handle this scope of duties. However, there are steps that could be taken (much like the other agencies) to make the workload manageable. Specifically:

- Training curriculum has, in many cases, been structured to cover both disciplines and associated training requirements. Continued emphasis on this point could keep the curriculum and instruction at a more manageable level – with less input needed by the training officer.
- Technology could be further emphasized. As an example, the department now has video conferencing equipment. This equipment has not yet been used to its full potential. Ideally, it could be used to routinely coordinate training between station houses and between fire agencies – thus getting more “bang for the buck” from each training session, or taking greater advantage of training offered by other agencies while remaining on-site and in active duty.
- Several other department members are certified Paramedic I.C. These, as well as other command officers, could be used more extensively for training exercises and/or curriculum development. As in other cited departments, Battalion Chiefs could also potentially assume a greater role.
- The clerical staff could be used more extensively in the documentation and scheduling of training activities. There is work capacity in these positions that could be utilized to lessen the administrative burden of the EMS Coordinator in areas such as reconciliation of ambulance billings and other necessary tasks.

Essentially, in the current fiscal environment it is necessary to recognize the need to “do more with less.” Cost reductions within STFD will be inevitable and lessening administrative costs is one means of avoiding cuts to actual line operations.

The reduction-in-force to one training officer would require creativity, teamwork and a new business model. If the current Chief of Training was to become the Fire Chief, it would create the “window” to allow the EMS Coordinator to assume the dual role. This would be the ideal transition but it is only one option. The ultimate goal should be the elimination of the vacant command position that will materialize with the ultimate promotion of a command officer to Fire Chief. Combining the training duties under one position will allow a reasonable staff reduction without impacting line operations.

3. *CLERICAL STAFF APPEAR VERY COMPETENT, BUT CAN BE USED MORE PRODUCTIVELY.*

STFD currently has two clerical/administrative employees: an Administrative Secretary who serves as office manager and a Secretary II. The secretaries service the public and perform duties pertaining to financial and operational administration. Duties include permit and FOIA processing, accounts payable and payroll, general personnel management file maintenance, various reports preparation, preparation of meeting materials and the development of various spreadsheets and databases for data capture and organization. Both employees seem highly skilled in Microsoft Office Suite and work competently with the Township’s New World software program and the Fire Department’s FireTools data management system.

In the past, the Fire Department has had as many as four clerical employees. While some or all may have been competent, none apparently had the skill sets of current employees. With two individuals with well developed computer skills, STFD has the administrative support to upgrade and/or automate areas that have previously been neglected. Some of these upgrades have been initiated by the interim Fire Chief and EMS Coordinator but much remains to be done – especially in the area of fire prevention, a subject addressed in the following subsection.

The challenge for fire command is to define the role of administrative support staff as broadly as possible and in such a way that the paraprofessional capabilities of the two incumbents are maximized. As mentioned, duties of the EMS Coordinator are one example. To the extent possible, routine audit procedures of patient billings, training schedules, billing reconciliations and other tasks can be performed by these individuals. Some already are – the challenge is to maximize the amount of delegation.

A major challenge will be the fire prevention division. This is an area where administrative staff should play an active role in workload scheduling, data management and compliance administration. The result would be a fuller workload and responsibility for administrative staff and more accountability in the fire prevention division. This issue is discussed in the following finding.

D. FIRE PREVENTION

The fire prevention division is staffed by four positions: a Fire Marshal and three Fire Inspectors. The division is responsible for site plan review for new construction (multi-unit residential, commercial and industrial), fire education, business inspection and fire investigation. Key findings regarding the fire prevention division include the following.

1. WORKLOAD MANAGEMENT AND DATA REPORTING SYSTEMS ARE DEFICIENT.

In conducting the study, we have attempted to obtain statistical and workload data for each operating area of the Fire Department, including fire prevention. Related to this, the following examples are representative of the inquiries directed to the Fire Marshal:

- How many business inspections were performed in 2008?
- How many fire education sessions were completed?
- How do you assign the Inspectors workload on a daily basis?
- What are the workload priorities?

In regard to the first two inquiries, we were told that workload summaries do not exist. Regarding the latter two, we received vague responses indicating that priorities shift and that the Fire Inspectors had discretion to determine and address workload priorities. Essentially it is impossible to determine what is being accomplished by the fire prevention division to any level of precision.

The deficiencies in workload planning and data management are something that one would not expect to see in the fire prevention division of a fire department as large and sophisticated as STFD. The Fire Marshal explains these deficiencies as inherited problems, but does not appear to be moving quickly to remedy the situation. Administrative staff have started to develop some databases to assist the fire prevention division in records management including,

- Outstanding violations
- Hood and duct inspections
- Sprinkler inspections (just underway)
- Self inspection reports
- (And) possible several others.

However, none of these upgrades (though useful) appear to be proceeding from a well-conceived plan. Instead, each appears to be a piecemeal, reactive response to an emerging issue or program.

The Fire Marshal has only held the position since January 2008, and in this sense, cannot be faulted for historic problems. However, by his admission, he is not overly computer-minded. Further, he does not exhibit a great urgency to change and/or upgrade operating systems. The Fire Marshal is a long-time employee of the fire prevention division and is apparently well-grounded in the existing business model.

In regard to duty assignments, the Fire Marshal is primarily responsible for site plan review for new construction, fire and arson investigation, overall management of the division, and (presumably) some inspection services. The incumbent has also been charged with responsibility for emergency management; a time-consuming task that he estimates at 25% of his total job assignment. As discussed in the following findings, the three Inspectors are primarily involved in field inspection activities and fire education. All fire prevention personnel share responsibility for on-call fire investigation coverage.

2. *THERE ARE CURRENTLY THREE FIRE INSPECTORS. STAFFING SHOULD BE REDUCED BY ONE, UNTIL SUCH TIME THAT ADDITIONAL STAFFING NEED CAN BE QUANTIFIED.*

As noted, there are currently three firefighters assigned to fire inspection duties. In regard to assignments, the two more senior Fire Inspectors are each assigned one-half of the Township respectively. One of these Inspectors also has primary responsibility for public education.

The third Fire Inspector has only been in the position since June, 2008. This Fire Inspector has been assigned to assist in the inspection process, often performing follow-up on inspections initially performed by the other two. He has also been assigned special projects such as the inspection of kitchen systems (hood and duct), an activity area that had not received adequate attention in the past. At the time of our interviews, this Fire Inspector was assigned to the collection of Firefighter Right-To-Know information – much of which was being done by phone.

In regard to this latter duty, Right-To-Know should be a department priority, with well developed data management systems and follow-up procedures. Under Right-To-Know, information is being solicited regarding the presence and location of hazardous chemicals – critical information for the fire suppression units. As such, it should be a department priority. However, we were unable to obtain data to show the exact status of the program.

Concerning the program, it is also something that could be organized and administered by the clerical staff. Much of Right-To-Know workload can be accomplished through mail and by phone. Having a Fire Inspector with a base salary of roughly \$70,000 perform the administrative aspects of this duty is simply not the best use of resources.

The Right-To-Know program is one more indication of the lack of program planning and effective resource allocation. Essentially, the prevention division's goals and objectives need to be clearly stated with activities prioritized to support these objectives.

Most importantly, it is impossible, at present, to determine what is being accomplished. There is simply no summary information available. For this reason, we would suggest that the following be considered.

1. The Fire Chief should take an active role in defining programs and related priorities, as well as methods for assigning work, supervising staff and measuring work output.
2. Data systems should be developed to support these programs and capture data regarding what has been accomplished. A specialized software program would be the preferred approach, and would form the basis for organizing activity and records in a logical fashion.
3. **Inspection staff should be reduced from three to two with one Fire Inspector returning to shift duty.**

The workload of the transferred Fire Inspector could be partially absorbed as follows:

- Administrative staff should take an active, defined role in programs such as Right-To-Know and business inspections. There are many additional duties that can be delegated to clerical staff requiring mail or phone duties – initial contact and follow-up.
- The Fire Marshal should assist in field inspection activities. There may well be enough workload capacity in the position to allow this added input.

The Fire Chief should then actively monitor divisional activities and begin a process of performance evaluation. Short-term action plans should be established that are tied to objectives.

In regard to the staff reduction, the return of the position incumbent to shift duty would fill the current vacancy on one shift and bring shift staffing to a uniform level of 18 for each of the three shifts. Fire prevention will undoubtedly argue that this position is critical to operations. Undoubtedly, it could be a very useful addition, in a more accountable system.

Related to this, a position could be re-added to the division at a later point-in-time, if justified. However, much should be accomplished before this option is considered. If reporting systems are improved, and justification can be shown for the position, a formal request could be made with appropriate documentation to support the addition in staffing.

3. THE FIRE PREVENTION DIVISION SHOULD COORDINATE THE FIREFIGHTERS' PREPLAN EFFORTS.

In addition to emergency duties, the fire companies are also active in fire preplanning. This duty involves visiting individual businesses or industrial properties, and developing maps that specify entrance/exit locations, utility shut-off locations, the presence of chemicals and flammable materials and other information pertinent to firefighting. The information is then stored in personal computers carried in the pumpers. The department reportedly will soon acquire printers for in-route printout.

At present, the fire prevention division has virtually no interaction with the preplanning program. Ideally, fire prevention would provide the firefighters with rudimentary instruction in fire inspection techniques and interact closely with the program to effectively draw information from the preplan process regarding fire violations. This would serve to increase the reach of fire inspection activity and also improve the quality of the preplan program.

On a related note, fire preplanning is a positive exercise that STFD has now fully embraced. Each fire house is expected to complete five preplans per month and the preplan process has now become routine. Using the fire companies to complete this task is a positive reduction of “stand-by” time and provides a basis for safer, more effective firefighting. As seen in Exhibit 14, only half of the benchmark fire agencies have a similar practice. STFD should be complemented for its work in upgrading this important information database.

**Exhibit 14
Shelby Township Fire Department
Comparison of Duties**

| Fire Agency | Do the engine companies do fire preplans? | Do your firefighters flush hydrants? |
|---|--|---|
| Shelby Township Fire Department | Yes | Yes |
| Canton Township Fire Department | Yes | No |
| Livonia Fire Department | No | Yes |
| Meridian Township Fire Department | No | No |
| Roseville Fire Department | not reported | Yes |
| Royal Oak Fire Department | Yes | Yes |
| Southfield Fire Department | Yes | Yes |
| Taylor Fire Department | No | No |
| Waterford Township Fire Department | Yes | No |
| West Bloomfield Township Fire Department | No | No |

Source: Rehmann Robson Survey

E. APPARATUS

At present STFD has the following vehicle inventory:

- Five engine/pumpers
- One quint/aerial
- One heavy rescue
- Six medium duty ambulances
- Seven administrative vehicles
- Two 4x4 pickups
- One SUV
- One van.

Motorized resources are deployed at the four stations according to need with the majority of the apparatus assigned to Station 1; the logistical center for fire suppression response. Stations 1 and 4 each have an assigned back-up ambulance to address the greater call volumes. Key findings regarding apparatus include the following:

1. DEPARTMENTAL EQUIPMENT APPEARS WELL MAINTAINED.

As part of the study process, our project team has performed a visual inspection of all station houses and motorized equipment. Select vehicle repair records have also been examined.

From an overall perspective, we have concluded that STFD's apparatus is well maintained. Moreover, it appears that the department has been deliberate and thorough in its vehicle replacement practices. Significant time has been expended in vehicle specification with an open mind toward selecting more cost efficient models and options. In this regard, the former Fire Chief appears to have served the Township well.

Vehicle maintenance is outsourced for both fire trucks and administrative vehicles. Vehicle records are maintained in hard copy only, making it difficult to establish vehicle cost and usage summaries. However, quarterly maintenance is consistently performed on all major apparatus and preventive maintenance practices appear more than adequate. The interim Fire Chief has recently identified and moved to a new service provider which may potentially reduce some ongoing repair costs.

Some body wear and rust is evident on some vehicles (particularly ambulances) but from an operational perspective, STFD's fleet appears adequate to meet community service needs.

2. STFD'S VEHICLE REPLACEMENT STANDARDS ARE NOT WELL DEFINED AND SHOULD BE UPGRADED.

In the fire industry there is no defined standard for determining a vehicle's useful life. The Insurance Services Office (ISO), as an example, is not concerned with vehicle depreciation – the ability to pass a pump test is its defining criteria. STFD, like other fire agencies, requires its vehicles to pass an annual pump test.

In our experience, the vehicle replacement schedules used by fire agencies generally range from 15-20 years for pumpers and 20-25 for ladder trucks. As seen in Exhibit 15, the benchmark agencies used for the study are on the low end of the ranges – rising to a higher number if Southfield is removed.

**Exhibit 15
Shelby Township Fire Department
Comparison of Replacement Schedule**

| Fire Agency | What is the replacement schedule (in years) for the following | | | |
|--|---|-------------|------------|--------------|
| | Ladder Truck | Pumper | Ambulance | Heavy Rescue |
| Shelby Township Fire Department | 15 | 15 | 6 | 15 |
| Canton Township Fire Department | 20 | 20 | 8 | 8 |
| Livonia Fire Department | 20 | 10 | 5.5 | 20 |
| Meridian Township Fire Department | 20 | 20 | 3 | - |
| Royal Oak Fire Department | 20 | 20 | 8.5 | - |
| Southfield Fire Department | 15 | 9 | 4.5 | - |
| Taylor Fire Department | 20 | 10 | 6 | - |
| Waterford Township Fire Department | 20 | 14 | 5 | 10 |
| West Bloomfield Township Fire Department | 20 | 16 | 5 | - |
| AVERAGE OF SURVEYED AGENCIES | 19.4 | 14.9 | 5.7 | 12.7 |

NOTE: Roseville reported no set schedule. Several others are average of range given

- denotes Not Applicable

Source: Rehmann Robson Survey

In fact, fire truck replacement should be based on the condition of the vehicle as well as the annual cost of maintenance. The age of the vehicle is often irrelevant, due to differences in usage among agencies (or fire houses). Mileage can also be misleading, since the number of hours in use may be much greater.

STFD does very little in regard to quantifying vehicle use and maintenance costs. In fairness, many municipal fire agencies have an established central motor pool operation that will track vehicle information and assist in establishing replacement criteria. STFD does not have this luxury.

However, much could still be done to improve management information. This would benefit all concerned parties and help the Township to avoid controversy surrounding vehicle replacement (as was the case in a recent ambulance replacement process). Essentially, policy makers (and fire command) require hard data in making decisions with cost ramifications of hundreds of thousands of dollars. This is particularly true in the current fiscal environment.

At present, STFD has few means at its disposal to assess vehicle turnover requirements. Its trucks are not equipped with hour meters, thus fire command has limited knowledge of actual usage. Vehicle records consist of repair orders and receipts from Apollo/Wolverine and other vendors, but nothing is done in regard to analysis of cost per mile, hour or other measures that would enhance and increase management information. Instead replacement decisions have been made based on the Exhibit 15 replacement schedule – a schedule that has limited basis in fact.

Lacking a central motor pool or in-house mechanic, it will be necessary for fire command to take the initiative for improvements to the current system. There is a Lieutenant assigned responsibility for equipment maintenance and this individual would be the logical choice to initiate upgrades. Also, the interim Fire Chief has a strong background in vehicle repair and is well suited to direct the process. More specifically:

- Hour meters should be installed in all vehicles and hourly usage and mileage should be tracked on a monthly basis. An initial/existing hour total can be obtained from the dealership/vendor through a computer system probe of each vehicle.
- A vehicle maintenance software program should be obtained (estimated \$1,000 cost or considered in an overall fire software upgrade). All repair records, past and future, should then be entered in the system as well as fuel and usage data. Reports can then be generated based on cost of operation and other pertinent facts.
- Over time, new replacement schedules can then be developed based on useful management information.

With the cost of fire trucks expected to continue to increase at an annual rate of 10%, it is essential that the useful life of apparatus be maximized. This is not to suggest that equipment be used beyond its useful life. Fire and ambulance service should not be comprised by a short-sighted approach to equipment replacement. Conversely, the premature replacement of equipment can have significant cost ramifications. This issue is discussed in the following finding.

3. ***THE TOWNSHIP SHOULD CONSIDER MODIFYING STFD'S VEHICLE REPLACEMENT SCHEDULE TO ACHIEVE COST SAVINGS.***

As discussed in the preceding findings, STFD's current vehicle replacement schedule for fire trucks and ambulances is as follows:

- Quint/aerial: 15 years
- Engine/pumper: 15 years
- Rescue: 15 years
- Ambulance: 6 years

The above parameters have become increasingly problematic from a cost perspective and several purchases, including an engine/pumper and ambulance (recently authorized for purchase) have been delayed.

As discussed above, the condition of the equipment, not simply age, should determine vehicle replacement. As mentioned, many departments use a 20 year depreciation schedule for engine/pumpers. This does not preclude replacing a vehicle at a lesser age – it simply established a longer anticipated life for the equipment.

At a time when increasing emissions and safety standards are driving the price of fire trucks higher (in excess of 10% per year), extending life expectancy can yield significant cost savings. This is illustrated in Exhibit 16, contained on the following page.

Exhibit 16 first illustrates STFD's existing vehicle replacement schedule. The scheduled years for fire truck and ambulance replacement are indicated as well as the future, estimated cost of each equipment piece. Should the schedule be followed, the Township would expend an estimated \$5,433,316 over the next nine fiscal years.

The second revised equipment replacement schedule makes several key changes that dramatically impact cost. Specifically:

- Engine/pumper useful life is extended to 18 years.
- Aerial useful life is extended to 20 years.
- Type 3, rather than the more expensive Medium Duty, ambulances become the new standard. (Discussed in the following finding.)

As seen in Exhibit 16, the total estimated cost savings resulting from these changes is **\$772,847** over the nine year period. In regard to fire trucks, it is not a significant difference from the current schedule and does not preclude purchasing a truck within a shorter time period if the need is demonstrated. Regarding the change in ambulance type, many fire agencies use the Type 3 ambulance for emergency transport services with good results. This issue is further discussed in the following finding.

**Exhibit 16
Shelby Township Fire Department
Current Fire Equipment Replacement Schedule**

| Equip. # | Year Purchased | Description | Location | Cycle (# Yrs) | Projected Year to Replace | 2010 Estimated Price | Annual Inflation | Fiscal Year In Which Equipment Is Scheduled to be Replaced | | | | | | | | | |
|---|----------------|-----------------------|-----------|---------------|---------------------------|----------------------|------------------|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------------|---------------------|
| | | | | | | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| A-1 | 2005 | Ambulance | Station 1 | 6 | 2011 | \$ 183,000 | 5.0% | | \$192,150 | | | | | | | \$257,499 | |
| A-2 | 2001 | Ambulance | Station 2 | 6 | 2010 | \$ 183,000 | 5.0% | \$183,000 | | | | | \$245,238 | | | | |
| A-3 | 2008 | Ambulance | Station 3 | 6 | 2014 | \$ 183,000 | 5.0% | | | | \$222,438 | | | | | | |
| A-4 | 2005 | Ambulance | Station 4 | 6 | 2012 | \$ 183,000 | 5.0% | | | \$201,758 | | | | | | \$345,074 | |
| A-5 | 1999 | Ambulance | Station 1 | 6 | 2010 | \$ 183,000 | 5.0% | \$183,000 | | | | | \$245,238 | | | | |
| A-6 | 2000 | Ambulance | Station 4 | 6 | 2009-2010 | \$ 183,000 | 5.0% | | | | | | \$245,238 | | | | |
| AMBULANCE SUBTOTAL | | | | | | | | \$ 366,000 | \$ 192,150 | \$ 201,758 | \$ 0 | \$ 222,438 | \$ 0 | \$ 735,714 | \$ 257,499 | \$ 345,074 | |
| E-1 | 2003 | Sutphen Rescue Pumper | Station 1 | 15 | 2018 | \$ 375,000 | 10.0% | | | | | | | | | \$803,846 | |
| E-2 | 2000 | Sutphen Rescue Pumper | Station 2 | 15 | 2015 | \$ 375,000 | 10.0% | | | | \$603,941 | | | | | | |
| E-3 | 1994 | KME Engine | Station 3 | 15 | 2010 | \$ 375,000 | 10.0% | \$375,000 | | | | | | | | | |
| E-4 | 2007 | Sutphen Rescue Pumper | Station 4 | 15 | 2022 | \$ 375,000 | 10.0% | | | | | | | | | | |
| E-5 | 1993 | KME Engine (back-up) | Station 4 | 15 | 2010 | \$ 375,000 | 10.0% | \$375,000 | | | | | | | | | |
| Q-1 | 1997 | Sutphen Ladder | Station 1 | 15 | 2012 | \$ 550,000 | 10.0% | | | \$665,500 | | | | | | | |
| R-1/Rescue | 1998 | Hackney Rescue | Station 1 | 15 | 2013 | \$ 250,000 | 5.0% | | | | \$289,406 | | | | | | |
| FIRE TRUCK SUBTOTAL | | | | | | | | \$ 750,000 | \$ 0 | \$ 665,500 | \$ 289,406 | \$ 0 | \$ 603,941 | \$ 0 | \$ 0 | \$ 803,846 | |
| Total Equipment Replacement Cost | | | | | | | | \$ 1,116,000 | \$ 192,150 | \$ 867,258 | \$ 289,406 | \$ 222,438 | \$ 603,941 | \$ 735,714 | \$ 257,499 | \$ 1,148,920 | \$ 5,433,326 |

**Shelby Township Fire Department
Revised Fire Equipment Replacement Schedule**

| Equip. # | Year Purchased | Description | Location | Cycle (# Yrs) | Projected Year to Replace | 2010 Estimated Price | Annual Inflation | Fiscal Year In Which Equipment Is Scheduled to be Replaced | | | | | | | | | |
|---|----------------|-----------------------|-----------|---------------|---------------------------|----------------------|------------------|--|---------------------|-------------------|-------------------|-------------------|-------------------|---------------------|---------------------|-------------------|---------------------|
| | | | | | | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | |
| A-1 | 2005 | Ambulance | Station 1 | 6 | 2011 | \$ 130,000 | 5.0% | | \$136,500 | | | | | | | \$182,923 | |
| A-2 | 2001 | Ambulance | Station 2 | 6 | 2010 | \$ 130,000 | 5.0% | \$130,000 | | | | | \$174,212 | | | | |
| A-3 | 2008 | Ambulance | Station 3 | 6 | 2014 | \$ 130,000 | 5.0% | | | | \$158,016 | | | | | | |
| A-4 | 2005 | Ambulance | Station 4 | 6 | 2012 | \$ 130,000 | 5.0% | | | \$143,125 | | | | | | \$192,069 | |
| A-5 | 1999 | Ambulance | Station 1 | 6 | 2010 | \$ 130,000 | 5.0% | \$130,000 | | | | | \$174,212 | | | | |
| A-6 | 2000 | Ambulance | Station 6 | 6 | 2009-2010 | \$ 130,000 | 5.0% | | | | | | \$174,212 | | | | |
| AMBULANCE SUBTOTAL | | | | | | | | \$ 260,000 | \$ 136,500 | \$ 143,125 | \$ 0 | \$ 158,016 | \$ 0 | \$ 522,636 | \$ 182,923 | \$ 192,069 | |
| E-1 | 2003 | Sutphen Rescue Pumper | Station 1 | 18 | 2021 | \$ 375,000 | 10.0% | | | | | | | | | | |
| E-2 | 2000 | Sutphen Rescue Pumper | Station 2 | 18 | 2018 | \$ 375,000 | 10.0% | | | | | | | | | \$803,846 | |
| E-3 | 1994 | KME Engine | Station 3 | 18 | 2012 | \$ 375,000 | 10.0% | | | \$453,750 | | | | | | | |
| E-4 | 2007 | Sutphen Rescue Pumper | Station 4 | 18 | 2025 | \$ 375,000 | 10.0% | | | | | | | | | | |
| E-5 | 1993 | KME Engine (back-up) | Station 4 | 18 | 2011 | \$ 375,000 | 10.0% | | \$412,500 | | | | | | | | |
| Q-1 | 1997 | Sutphen Ladder | Station 1 | 20 | 2017 | \$ 550,000 | 10.0% | | | | | | | | | \$730,769 | |
| R-1/Rescue | 1998 | Hackney Rescue | Station 1 | 18 | 2016 | \$ 250,000 | 5.0% | | | | | | \$664,335 | | | | |
| FIRE TRUCK SUBTOTAL | | | | | | | | \$ 0 | \$ 412,500 | \$ 453,750 | \$ 0 | \$ 0 | \$ 0 | \$ 664,335 | \$ 730,769 | \$ 803,846 | |
| Total Equipment Replacement Cost | | | | | | | | \$ 260,000 | \$ 549,000 | \$ 596,875 | \$ 0 | \$ 158,016 | \$ 0 | \$ 1,186,971 | \$ 913,692 | \$ 995,915 | \$ 4,660,469 |
| COST SAVINGS FROM TYPE 3 AMBULANCE AND NEW DEPRECIATION SCHEDULE | | | | | | | | \$ 856,000 | \$ (356,850) | \$ 270,383 | \$ 289,406 | \$ 64,422 | \$ 603,941 | \$ (451,257) | \$ (656,193) | \$ 153,005 | |

TOTAL NET SAVINGS OVER 9 YEAR SCHEDULE: \$772,847

4. STFD SHOULD SWITCH TO A MORE COST EFFICIENT TYPE 3 AMBULANCE MODEL. OTHER PRACTICES SHOULD ALSO BE INSTITUTED TO EXTEND AMBULANCE LIFE.

During the course of the project, the Township Board has struggled with the issue of ambulance replacement, particularly a back-up ambulance for Station 4. The ambulance in question, a 2000 McCoy Miller, has approximately 109,000 miles of use and had recently required extensive repair work to the fuel system. The ambulance experienced a subsequent breakdown on a service call, prompting the Fire Department to increase its appeals for immediate replacement.

Faced with the need for immediate decision-making, the Board solicited our opinion. After evaluation of the issue, we recommend that the Board authorize the purchase of the new ambulance. This recommendation was not necessarily based on need. More significantly, the purchase of the ambulance at this point-in-time would provide a cost savings of approximately \$20,000 from delaying the purchase into 2010 – due to the significant, pending cost increases in Medium Duty ambulances dictated by necessary emissions upgrades.

In fact, the need to replace an ambulance at this point-in-time is questionable and the Board should be commended for doing its due diligence. By way of explanation, STFD currently has six ambulances. The types and assignment of these ambulances is illustrated in Exhibit 17.

**Exhibit 17
Shelby Township Fire Department
Summary of Current Ambulance Inventory**

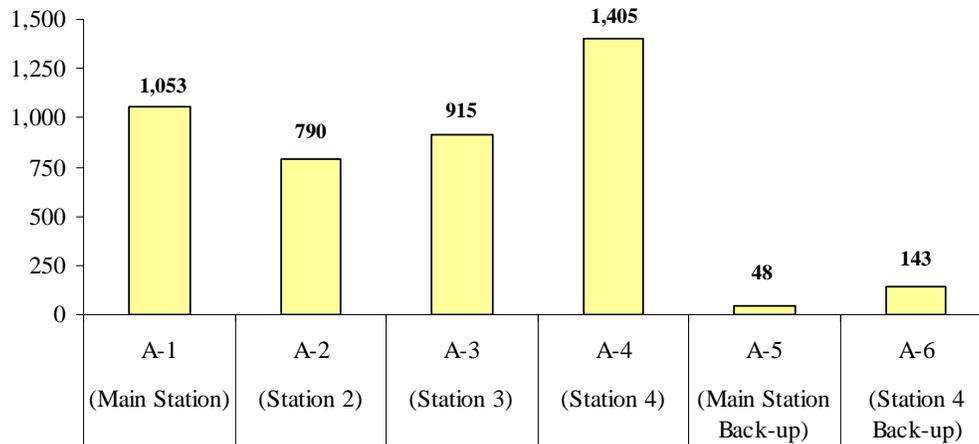
| Ambulance Number | Type | Assignment | 2008 Calls | Mileage at 12/31/08* |
|-------------------------|----------------------------|----------------------|-------------------|-----------------------------|
| A-1 | 2005 GMC 4500 | Main Station | 1,053 | 44,000 |
| A-2 | 2001 Freightliner FI-60 | Station 2 | 790 | 68,000 |
| A-3 | 2008 Chevy 5500 Traumahawk | Station 3 | 915 | 10,000 |
| A-4 | 2005 GMC 4500 | Station 4 | 1,405 | 55,000 |
| A-5 | 1999 McCoy Miller | Main Station/back-up | 48 | 91,000 |
| A-6 | 2000 McCoy Miller | Station 4/back-up | 143 | 107,000 |

* As close as can be estimated in round numbers
Source: Shelby Township Fire Department

As seen in the exhibit, each station house is assigned one ambulance, with Stations 1 and 4 housing a back-up. The object of the recent ambulance replacement debate was A-6.

As seen above, and illustrated in the following Exhibit 18, A-6 is not subjected to a heavy workload. Moreover, the amount of annual ambulance usage varies significantly among the station houses, as does accumulated mileage.

Exhibit 18
Shelby Township Fire Department
Annual Call Response per Ambulance -2008



Source: Shelby Township Fire Department 2008 Annual Report

Several conclusions can be drawn from this usage data. Specifically:

- The ambulances are subjected to very different workloads, but are typically assigned to a single station house over the course of primary duty assignment. Consequently, they reach the six-year replacement schedule (or back-up duty or sale) at very different mileages.

As an example, with the authorization of a new ambulance purchase and A-6's retirement, A-2 will become the new back-up for Station 4 with only 75,000 miles. With back-up assignment limited to only 143 calls in 2008, this is an expensive option for limited duty.

- An examination of Exhibit 17 illustrates that this process of under-usage will continue as future ambulances retire. At a cost of \$180,000 or more per ambulance, there is much waste in the current system.
- Ambulance vendors (including STFD's current vendor) estimate that the Medium Duty ambulances used by STFD should be capable of providing 140,000-150,000 miles of service. However, the four vendors to whom we spoke also suggest a six-year replacement schedule.

Based on this, we would conclude that even with proper ambulance rotation (a practice that should be adopted), STFD may not log sufficient miles to maximize the use of the Medium Duty models.

Related to the above, we have extensively evaluated other ambulance options – in regard to size and type. In the past, STFD reportedly used Type 2 ambulances, similar to those used by private ambulance companies. Command staff report that maintenance issues prompted a changeover to the larger, more expensive Medium Duty type. Also, the Type 2 ambulances did not afford sufficient room for storage of firefighter gear and firefighter apparatus.

There is an option in ambulance design that incorporates the large box feature of the Medium Duty ambulance on a lighter chassis. This ambulance type is referred to as Type 3. The design combines the capacity of a larger module body with the walk-through accessibility of a van. (Note: SFLD has had Type 3 ambulances in the past.)

The Type 3 option is used by many transport agencies in Michigan. We have noted their use in the City of Eastpointe and Canton Township during the study and spoken with representatives of numerous agencies regarding this type of apparatus. Feedback has been very positive. The design provides ample room for patient treatment as well as storage space for firefighter gear. A Ford 450 chassis is available, providing a durable and sturdy foundation. Ford will be introducing a gasoline model in 2010, which many feel will be more reliable and cost efficient than the traditional diesel power trains.

The estimated cost for a reasonably equipped vehicle is \$130,000 for 2010 – much less than the \$180,000 that will be required for a Medium Duty vehicle. We have previously suggested to the Board that the “re-chassis” of existing vehicles (i.e. refurbishing the existing box for placement of a new chassis) could be a cost effective alternative to the ongoing, expensive replacement of the Medium Duty ambulances. Cost savings associated with this approach could reduce ambulance cost by \$25,000.

However, the changeover to the Type 3 ambulance appears to be the most cost-efficient option. As seen in the previous Exhibit 16, the six-year replacement schedule could be retained. STFD appears to be basing its request for ambulance turnover on a 100,000 mile (or less) primary duty life and this could be accommodated more readily with the less expensive Type 3 ambulance. The cost savings would be substantial – most likely \$50,000 per vehicle. Moreover, vendors (as well as agencies) report much higher reliability and reduced maintenance costs with newer Type 3 models – a criticism that SFLD has voiced regarding past experience with this type of ambulance.

5. *ADMINISTRATIVE DRIVE-HOME PRIVILEGES SHOULD BE REMOVED.*

At present, STFD has seven administrative vehicles – each of which is taken home daily by the individual to whom the car is assigned. Individual car assignments are as follows:

- Fire Chief (not applicable at present)

- Chief of Training/interim Fire Chief
- EMS Coordinator
- Fire Marshal
- Three Fire Inspectors

The only rationale given for the drive-home privilege is that two individuals are always on call-in for possible fire investigations and must have a car to convey them and their equipment to the fire scene. This duty is limited to the Fire Marshal and three Fire Inspectors – presumably accounting for the need for four cars. In 2008, there were approximately 65 call-ins for fire investigations.

In response to our inquiries, command stated that there are no established policies for limiting the use of the vehicles. Comparative odometer readings are also not available to assist in quantifying individual historic usage. Essentially, each individual is free to determine appropriate usage, with virtually no accountability.

In regard to the cost of the drive-home privilege, there is not sufficient information to provide a reasonable cost estimate. However, we can estimate a partial cost simply by estimating daily mileage to/from the residence of each of the seven drivers (including the retired Fire Chief). Specifically:

| | |
|--|-----------------------|
| - Daily estimated mileage | 105 |
| - Assumed average days worked per year | 230 |
| - <u>2008 IRS mileage rate</u> | <u>\$.55 per mile</u> |
| Estimated cost to the Township | \$13,282.50 |

As noted above, it may be reasonable to assume some level of additional “discretionary” driving, consequently, the cost to the Township is likely higher, and possibly much higher.

In fairness to the seven incumbents, Article 42 of the labor agreement states that “each shall be provided with a Township vehicle to utilize for work, including transportation to and from work...” However, it is also our understanding that this article was the focus of a past labor arbitration with the ruling providing the Township with the option of rescinding the privilege and providing Fire Inspectors and others with mileage reimbursement for call-in duty. We cannot verify the accuracy of this account, but in either case, the Township would be well served to pursue the option of mileage reimbursement as opposed to car assignment. This could be done fully, or partially. More specifically:

- The Fire Chief could retain a car if the Board considered this requisite to be appropriate. It is not an uncommon practice.
- All take-home car assignments could be revoked. In this case, the two Fire Inspectors on call-in duty would be required to store their equipment in their

personal vehicle for the on-call week(s) and would be paid mileage for call-out.

- Two cars could be driven home by the two on-duty Fire Inspectors with explicit rules limiting vehicle use.

Summarily, this is an area where additional management control is needed. Other options are also available for limiting vehicle use. The Board should determine which is most appropriate.

F. AMBULANCE FEES

STFD’s fees for ambulance transport services generated a net revenue stream of approximately \$800,000 in FY 2008 after write-offs and fees paid to billing and collection agencies. STFD transported 2,609 individuals to the hospital in calendar 2008. On the cost side, there is no accounting of the total cost of providing this service due to the “blended” use of firefighters for fire suppression and prevention activities as well as ambulance services. Like most fire agencies that transport, STFD considers the service a valuable addition to the emergency services menu. From an operational perspective, the service assures a higher utilization of firefighting personnel and a positive means of reducing “stand-by” time. Key findings regarding the fees charged for ambulance service include the following:

1. THE TOWNSHIP IS SUBSIDIZING AMBULANCE SERVICES FOR RESIDENTS AT A SIGNIFICANT COST.

STFD has two rate schedules for ambulance services: one for residents and one for non-residents, with the latter schedule commanding higher rates. This is illustrated in the following Exhibit 19.

**Exhibit 19
Shelby Township Fire Department
Schedule of Current Ambulance Billing Rates**

| Service Type | Current Resident Fee | Current Non-Resident Fee | ACCUMED - Typical Client Fee Level Resident/Non-Resident | BC/BS | Medicare |
|-------------------------------------|----------------------|--------------------------|--|---------|----------|
| BLS Emergency | \$325 | \$425 | \$425/\$525 | \$407 | \$352 |
| ALS Emergency | \$475 | \$475 | \$550/\$650 | \$483 | \$418 |
| ALS II (advanced procedures) | \$600 | \$650 | \$750/\$850 | \$700 | \$605 |
| Mileage | \$7.00 | \$7.00 | \$10.41 | \$10.41 | \$6.87 |
| Oxygen | \$0.00 | \$0.00 | \$50.00 | \$39.71 | - |

- dash indicates no charge authorized
Source: Shelby Township Fire Department

Exhibit 19 also lists fairly typical fee levels charged by other municipal clients of ACCUMED, the Township's ambulance billing company, as well as current allowable rates for Blue Cross/Blue Shield (BC/BS) and Medicare.

As related to comparable rates, the following can be gleaned from Exhibit 19.

- Shelby Township maintains its ambulance fee schedule for residents at a significantly lower level.
- Rates for both residents and non-residents are at a level lower than fees typically charged by other ACCUMED clients.
- Mileage rates are low and there is no oxygen charge.

Maintaining a fee schedule that is lower than the reimbursable rate of private insurance companies and BC/BS is simply "leaving money on the table." The Township has apparently maintained the current fee schedule to assure that residents pay a low rate. However, the Township is "writing off" all co-pays and deductibles. Further, residents without insurance also receive an automatic "write-off". The cost of this largesse is roughly \$125,000 per year.

In regard to the above practices, it is likely that the Township wishes to avoid the possibility of "double taxation." Simply put, since residents fund the Fire Department with property tax millage, some might argue that additional fees are inappropriate.

However, this argument can be seen as inconsistent with the philosophy and rationale for user fees. More specifically, user fees, by definition, are intended to lessen the cost to the general public by assessing fees-for-service to identifiable service recipients. Building permit fees, recreation fees and ambulance fees are all examples of this philosophy in practice. In each case, service cost can be shifted from the general public to an identifiable individual that is benefiting from the service. In turn, millages or other general revenue streams can be maintained at lower levels.

Summarily, the Township should consider the following:

- Raise fee levels to a typical municipal level as specified in column 4 in Exhibit 19.
- Cease the practice of writing off resident co-pays and deductibles.
- Subsidize ambulance users only in cases of demonstrated and (documented) hardship.
- Authorize the Township's collection agency to pursue resident, as well as non-resident, receivables that are outstanding.

Modifying the current practices may not be easy from a political perspective. However, it will result in a more equitable system as well as increased revenue generation.

We have asked ACCUMED to provide the information necessary to develop a cost estimate of the changes suggested above. They have estimated that the adoption of the “typical rates” included in Exhibit 19 could yield an estimated **\$275,000** in additional revenue, based on 2008 data.

The amount of revenue in question is substantial and should receive serious attention. Related, STFD should work with ACCUMED to further refine the revenue estimate and present a formal rate increase request to the Board – including elimination of the “blanket” exemptions from charges and co-pays.

2. STFD SHOULD CONTINUE TO SEEK A LOWER FEE FOR AMBULANCE BILLING.

At present, ambulance billing is outsourced to ACCUMED at a fee of 9% of collected fees (prior to collection agency). In FY 2008, this fee amounted to \$82,705.

STFD has been actively seeking competitive bids for this service and may have identified a reputable firm as an alternative at a rate of 6.5% - 7%. At these rates, STFD could realize an estimated annual cost reduction ranging from \$18,227-\$22,832.

The EMS Coordinator appears to be working toward a recommendation on this issue. Due diligence regarding the capabilities of the competitive firm will be in order. A renegotiation of fees with ACCUMED could also be an option. As seen in Exhibit 20, many of the benchmark fire agencies realize a lower billing fee than STFD.

**Exhibit 20
Shelby Township Fire Department
Comparison of Certification and Transport**

| Fire Agency | Level of Medical Certification | Transport? | If yes, estimated annual revenue | If yes, is billing contracted? | If yes, percentage paid for service | Do you do non-emergency transports? |
|---|--------------------------------|------------|----------------------------------|--------------------------------|-------------------------------------|-------------------------------------|
| Shelby Township Fire Department | ALS | Yes | \$765,000 | Contracted | 9% | No |
| Canton Township Fire Department | ALS | Yes | \$1,100,000 | Contracted | not reported | No |
| Livonia Fire Department | ALS | Yes | \$1,500,000 | Contracted | 8-9% | Yes |
| Meridian Township Fire Department | ALS | Yes | n/a | Contracted | n/a | No |
| Roseville Fire Department | ALS | Yes | \$825,000 | Contracted | 7% | Yes |
| Royal Oak Fire Department | ALS | Yes | \$900,000 | Contracted | 7% | No |
| Southfield Fire Department | ALS | Yes | \$1,759,000 | Contracted | 7% | No |
| Taylor Fire Department | ALS | Yes | \$1,300,000 | Contracted | 8% | No |
| Waterford Township Fire Department | ALS | Yes | \$1,100,000 | Contracted | 10% | No |
| West Bloomfield Township Fire Department | ALS | Yes | \$1,141,000 | Contracted | not reported | No |

Source: Rehmann Robson Survey

G. ISO

In Michigan, a Public Protection Classification (PPC) rating is frequently used to determine a community's property and casualty insurance rates. PPC ratings are issued by the Insurance Services Office (ISO). Communities receive a PPC rating of one to ten based on ISO's analysis of the quality of fire protection in an area.

In evaluating a community, ISO considers three major categories and awards credits accordingly. These include:

- Receiving/handling fire alarms: 10%
- Fire Department: 50%
- Water supply: 40%

The PPC is then based on the number of credits awarded as follows:

| <u>Class</u> | <u>Number of Credits</u> |
|--------------|--------------------------|
| 1 | 90.00 or more |
| 2 | 80.00 to 89.99 |
| 3 | 70.00 to 79.99 |
| 4 | 60.00 to 69.99 |
| 5 | 50.00 to 59.99 |
| 6 | 40.00 to 49.99 |
| 7 | 30.00 to 39.99 |
| 8 | 20.00 to 29.99 |
| 9 | 10.00 to 19.99 |
| 10 | 0 to 9.99 |

Shelby Township received its most recent ISO review in 1994. At that time, the Township was given a PPC rating of 5.

Since that time, the Township has grown substantially. The impact of this growth on the PPC rating is not clear – particularly because of the significant growth (and noted issues) in the Station 4 service area. Some firefighters feel that the Township could actually lose points due to the response issues noted earlier in this report.

From the community's perspective, a change in PPC rating to a lower number can provide a reduction in insurance premiums. Some rating changes favor business rates while others impact residential rates similarly or greater. Generally speaking, a change from PPC 5 to PPC 4 or 3 can be favorable to residents. The actual rate of reduction is dependent on many factors and best left to insurance providers working with individual property owners.

In 1994, Shelby Township realized its PPC 5 with a total credit of 59.22%, or less than one percentage point away from the Class 4 rating. Water supply was rated very high at that time; less than 3% from full credit. The other areas (communication and fire department) were rated about half. With half credit given for alarm receipt and the fire department, it is not

unreasonable to think that the Township may have reached a PPC 4 level with subsequent improvements in radio systems, training and training records and report writing. If not, the further upgrades recommended in this report could be the needed catalyst.

Summarily, the Township should consider inviting ISO to perform an evaluation. A negative impact on PPC rating seems an unlikely outcome and lower PPC is a distinct possibility. Moreover, if a PPC 4 is not achieved, the guidelines provided by ISO (if requested by the Township Supervisor) will provide a road map for an upgrade strategy.

As seen in Exhibit 21, a number of the benchmark communities have achieved PPC 4 or even 3. Shelby Township should have a similar goal within realistic fiscal bounds.

**Exhibit 21
Shelby Township Fire Department
Comparison of Demographic Data**

| Fire Agency | Population Served | Square miles of service area | Number of station houses | Station Miles Covered Per Station House | Lowest ISO Rating |
|--|-------------------|------------------------------|--------------------------|---|-------------------|
| Shelby Township Fire Department | 71,277 | 36 | 4 | 9 | 5 |
| Canton Township Fire Department | 86,852 | 36 | 3 | 12.0 | 5 |
| Livonia Fire Department | 93,931 | 36 | 5 | 7.2 | 4 |
| Meridian Township Fire Department | 39,938 | 32 | 3 | 10.7 | 4 |
| Roseville Fire Department | 46,977 | 9.5 | 2 | 4.8 | 5 |
| Royal Oak Fire Department | 58,229 | 11.8 | 3 | 3.9 | 3 |
| Southfield Fire Department | 81,456 | 28.8 | 5 | 5.8 | 3 |
| Taylor Fire Department | 62,374 | 24 | 3 | 8.0 | 4 |
| Waterford Township Fire Department | 73,863 | 40 | 5 | 8.0 | 5 |
| West Bloomfield Township Fire Department | 64,600 | 36 | 6 | 6.0 | 3 |
| AVERAGE OF OTHER AGENCIES | 67,580 | 28 | 4 | 7 | 4 |

Population estimates from Sperling - 2009
Source: Rehmann Robson Survey

* * * * *

In the following section we provide our recommendations for improvement.

SECTION III

RECOMMENDATIONS FOR IMPROVEMENT

SECTION III

RECOMMENDATIONS FOR IMPROVEMENT

In this section of the report we present recommendations for improvement for STFD. The recommendations are based on the findings and conclusions presented in Section II and seek to identify and achieve both cost savings and improved operating systems. They include the following:

1. THE TOWNSHIP SHOULD ELIMINATE TWO VACANT STAFF POSITIONS.

At present, STFD has two vacant staff positions, a Firefighter and the Fire Chief. Presuming that the Fire Chief position is filled by an internal candidate, STFD will likely have one vacant command position and one vacant Firefighter position.

It is our recommendation that the Township eliminate these two vacant positions while maintaining line staffing at 18 firefighters per battalion. To accomplish this we suggest eliminating two administrative positions as follows:

- **The EMS Coordinator position should be eliminated.** As discussed in the findings, the duties of this position should be absorbed by the Chief of Training. The utilization of other personnel for training duties, increased use of technology and greater reliance on support staff will make this transition possible. Other fire agencies function with one training officer, and STFD should be similarly staffed. If the Chief of Training (i.e. interim Fire Chief) becomes the next Fire Chief, the current EMS Coordinator can simply assume the position of Chief of Training. It is our hope that this is the course of action that the Township takes. The interim Fire Chief has displayed good leadership potential and is well received by the firefighting cadre. Essentially, we feel that this individual would serve the Township well in the position of Fire Chief.

The EMS Coordinator should also make an excellent Chief of Training officer. He is currently in a position in which his predecessor apparently was not strong. He has upgraded training systems and should continue to do so as the Chief of Training.

- **One Fire Inspector position should be eliminated** with the incumbent returned to a firefighting battalion. As discussed, the fire prevention bureau is sorely in need of improved operational management, reporting systems and forward planning. In the current system it is not possible to document work output or performance. In this situation, one Fire Inspector position should be eliminated – at least until the point-in-time when operational systems have been approved. As discussed in the findings, some duties of the positions can be absorbed by clerical personnel, such as Right-To-Know program administration. Also, the Fire

Marshal appears to have the work capacity necessary to perform some field inspection work.

The Fire Department will inevitably argue that both of these positions are critical to operations. However, **we are not suggesting actual staff reductions – only that the department remains at the current staff level of 59.** Essentially, a modest reduction of two positions is recommended to be achieved through attrition. Firefighter staffing is actually enhanced for field operations with the Fire Inspector transferring to line duty. Moreover, if either staff reduction creates a situation that is clearly not workable (not our expected outcome) a hire could be made at a later point-in-time. In this sense, there is little downside in accepting our recommendation. On the positive side, **the cost savings associated with the elimination of these two positions is \$188,358** (i.e. one Training Lieutenant and one entry-level Firefighter position).

2. A PLAN SHOULD BE DEVELOPED FOR THE UPGRADE OF THE FIRE PREVENTION DIVISION AND SOFTWARE SHOULD BE ACQUIRED.

As mentioned, fire prevention does not have an organized approach to resource management or task accomplishment. To rectify the situation, it is suggested that the Fire Chief take the lead in articulating fire prevention goals and implementing the systems necessary to measure accomplishments and track output.

Related to this, fire prevention needs a comprehensive database of properties as well as software designed to facilitate workload planning and accomplishments and records management. In regard to the former, the Assessor's record of personal properties could be a starting point. In regard to software, proprietary applications are available that will house this occupancy database, as well as:

- An inspection module with “pop-up” code access
- Mobile interface for laptop upload and download
- Incident reporting
- Investigative reporting
- Staff training and activities
- Staff scheduling.

The current FireTools software can accommodate very little of the above. A proprietary inspection-based application can be purchased at a cost of roughly \$10,000.

Concurrently, fire prevention must determine what its priorities are and proceed accordingly. Specifically, the order in which activities should be addressed should be determined (e.g. Right-To-Know, places with high life hazard potential, etc.).

As discussed, clerical staff also need to be integrated into the inspection program, assisting through phone and mail tasks, data input and general scheduling and follow-up.

Lastly, fire prevention should take a greater role in preplan activities, instructing firefighters in basic inspection techniques and monitoring inspection results for information regarding non-conformance with fire codes.

3. *VEHICLE REPLACEMENT CRITERIA SHOULD BE DEVELOPED AND MONITORED.*

As discussed, there is currently insufficient data to establish a reasonable vehicle replacement schedule. To rectify the situation, a number of upgrades should be undertaken. Including:

- Hour meters should be installed in all emergency vehicles.
- A vehicle maintenance software program should be acquired (estimated cost: \$1,000).
- All repair data should be entered into the software, as should monthly hour and mileage totals, fuel consumption and safety checks.
- Periodic management reports should be generated specifying cost per hour, cost per mile and other measurement data.

The results of this effort will be the availability of information for requests and justification for vehicle replacement. Responsibility for the software should be given to the Lieutenant in charge of vehicle maintenance. The logistics of data entry can be determined by this individual.

4. *THE VEHICLE DEPRECIATION SCHEDULE SHOULD BE EXTENDED FOR THE AERIAL, ENGINE/PUMPERS AND THE HEAVY RESCUE.*

As discussed, extending vehicle depreciation schedules for the aerial (five years), engine/pumpers (three years) and heavy rescue (three years) would save significant dollars in a period of rapidly increasing prices for fire equipment.

As mentioned, extending the useful life of vehicles does not preclude buying new equipment at a lesser age, if warranted. What it does do is extend the life expectancy of equipment from a standard that has no basis in fact. As an example, the aerial is not routinely used by STFD. This expensive equipment piece (current estimated price of \$550,000) is set on a 15 year replacement schedule, the same as the engine/pumpers, most of which are used much more extensively. A longer depreciation schedule is warranted, with 20 years being a more realistic estimate. If earlier replacement is justified for this, or any other equipment piece, a case can be made with the improved

vehicle information resulting from the upgrades presented in the preceding recommendation.

The **estimated cost impact of suggested changes to the depreciation schedule is \$772,847** over a 9-year period – including the future changeover to Type 3 ambulances, an issue discussed in the following recommendation.

5. ***STFD SHOULD SWITCH TO TYPE 3 AMBULANCES FOR FUTURE PURCHASES. ROTATION OF THE FLEET BETWEEN STATION HOUSES SHOULD BECOME STANDARD PRACTICE.***

As discussed, STFD is currently purchasing and utilizing Medium Duty ambulances. A smaller (but still substantial) option is the Type 3 ambulance used by many fire departments and ambulance providers. **The cost differential between the two is approximately \$50,000.**

Based on our findings, we have concluded and recommend that future ambulance purchases focus on the Type 3 ambulances. These can be maintained on a six-year replacement schedule, near the 100,000 mile turnover rate (or back-up duty) that STFD appears to favor. As discussed, this will provide a more efficient use of ambulance life.

It is also recommended that STFD begin rotating ambulances between the station houses as a means of realizing a more uniform mileage over the course of useful life. Under the current system, potential useful life is not being realized due to variances in mileage and age of the equipment. This rotation will help to rectify the situation as STFD gradually transitions to the Type 3 option.

6. ***ADMINISTRATIVE DRIVE-HOME PRIVILEGES SHOULD BE REVOKED OR NEGOTIATED OUT OF THE CONTRACT.***

As discussed, seven administrative vehicles are currently driven home as a matter of practice. The cost to the Township is estimated at a minimum of \$13,282, and is probably much higher. Reportedly, the Township received a favorable arbitration ruling in the past that would allow the payment of mileage expense for on-call activities, rather than car assignment. If this is true, the Township should proceed to end all, or a portion of, the drive-home privileges. If not true, the practice should be targeted for negotiation and removal from the labor contract.

In regard to rescinding the drive-home privilege, the Township has the option of retaining some that are considered reasonable and/or operationally advantageous. These might include:

- Fire Chief
- Fire Inspectors or Fire Marshall when on on-call duty.

7. THE TOWNSHIP SHOULD CONSIDER RAISING AMBULANCE SERVICE FEES AND REMOVE RESIDENT EXEMPTIONS.

At present, insured resident ambulance users pay nothing above the insurance allowable rate for ambulance service. Uninsured users pay nothing. Additionally, ambulance service fees are maintained at artificially low levels.

Preliminary analysis by ACCUMED, the Township's contract billing service, estimates that an additional **\$275,000** could be generated by charging all users for service and co-pays. Related to this, we suggest that the following be considered as a means of realizing this revenue stream:

- Raise fee levels to a typical municipal level as specified in column 4 in Exhibit 19.
- Cease the practice of writing off resident co-pays and deductibles.
- Subsidize ambulance users only in cases of demonstrated and (documented) hardship. Standards should be developed by the Township Board.
- Authorize the Township's collection agency to pursue resident, as well as non-resident, receivables that are outstanding.

8. THE TOWNSHIP SHOULD NEGOTIATE A LOWER RATE FOR AMBULANCE BILLING SERVICES.

At present, the Township pays 9% of monies collected (not including collection agency) for ambulance billing services. The contractor, ACCUMED, is one of the largest in the geographic region and appears to provide a high quality of service.

STFD has identified a service provider that may provide a rate of 6.5% -7% which would provide a cost savings of \$18,227-\$22,832, based on the FY 2008 charge. This option should be investigated further.

If services are found to be comparable, and service costs are calculated in similar fashion, STFD should solicit competitive bids from the prospective service provider, ACCUMED, and any other firms that may wish to bid.

9. THE TOWNSHIP SHOULD REQUEST AN ISO REVIEW.

As discussed, a reduction in the Township's PPC rating would likely result in a reduction in insurance premiums for businesses and residents. The last ISO appraisal, conducted in 1994, placed the PPC rating at 5 – very close to a 4. With subsequent upgrades, the Township may be at a 4 level.

If not, an ISO appraisal would reveal what is needed to achieve this upgrade. Either way, the Township would benefit from an ISO study process. For this reason, we recommend that the Township Supervisor consider requesting this service.

10. *THE TOWNSHIP SHOULD CONSIDER PURCHASING PROPERTY FOR A NEW STATION 5. OPTIONS FOR SHORT-TERM SERVICE COVERAGE SHOULD ALSO BE INVESTIGATED.*

As discussed, Station 4 is not ideally located to serve the southeastern portion of the Township. Response times are higher than those of other areas and may worsen further when development resumes.

In the current fiscal environment, it would not be prudent to assume the costs of land purchase, facility construction, vehicles, facility operating costs and additional staffing for a Station 5. What would be logical is to recognize an emerging problem and plan for the future. The first step in this process could be land acquisition at a time when prices should be at a premium. Related, it would be our recommendation that fire command begin to evaluate the issue and recommend several optional locations to the Board (with accompanying analysis and rationale).

Additionally, SFLD should investigate cooperative arrangements for serving the southeast corner of the Township. This might include a cooperative arrangement with the Utica Fire Department, or Medstar, the private ambulance provider. As a first step, the Fire Chief should approach both regarding the issue, summarize related findings and report to the Board.

11. *FUTURE LABOR NEGOTIATIONS SHOULD FOCUS ON REDUCING SOME FIREFIGHTER BENEFITS AS AN ALTERNATIVE TO FURTHER STAFF CUTS.*

In FY 2009, Fire Department wages and benefits will total an estimated \$9.3 million dollars. Fire Department expenditures are budgeted at more than \$16 million in FY 2009, or roughly 22% of total expenditures for all Township uses and service areas.

The rapid increase in costs associated with firefighter wages and benefit areas such as health care, retiree health care, pensions and other perquisites is far exceeding the rate of inflation or property tax revenues.

From the layman's perspective, many of the personnel costs may seem excessive – something that the typical citizen will never enjoy. Examples include:

- A base salary of roughly \$71,800 for a five-year firefighter/medic
- Only nine or ten days of scheduled work per 28 day period with ability to trade duty-time
- A retirement at 25 years of service regardless of age

- The ability to fold accumulated sick, vacation and other time into the final calculation for retirement. As a result, many firefighters retire at an annual amount similar to their wage level. As an example, a recent retiree with a base salary of \$86,882 retired at an annual rate of \$78,352.
- An additional \$1000 annual “allowance” paid to all retirees hired after 1-1-89
- Retiree health care from the time of retirement (whatever age) until death
- All promotions made by seniority
- Additional “longevity” pay of 2%-10% of base wage paid annually
- Generous annual sick and vacation time provisions with payouts for unused totals.

With these levels of compensation, it is only a matter of time before fire service costs become prohibitive. As seen in Exhibit 2, included on page I-3, we estimate that under current financial trends, the Fire Fund’s sizable fund balance will be depleted over the coming five year period.

For this reason, we strongly encourage the Township to implement the relatively modest recommendations on cost reduction included in this report. Additionally, the Township’s labor stance should focus on reducing some personnel costs going forward; be it through reduction of benefits for current employees, or the negotiation of a “two-tiered” system that will modify compensation and benefits for future hires.

This will be a difficult task to accomplish. Negotiations with a fire union are subject to compulsory arbitration under State law in the event of impasse and arbitrators have been slow to recognize the worsening municipal financial environment. In this sense, the Township will experience a continuing challenge in the quest to maintain operating costs at an acceptable level. Hopefully, this report will provide the basis for a first step.