



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



Agricultural Economics Report

No. 610

August 2001

LIVINGSTON COUNTY EMERGENCY SERVICES ANALYSIS

By:

**William H. Shields
Dr. Lynn R. Harvey**

**Department of
Agricultural Economics
MICHIGAN STATE
UNIVERSITY
East Lansing, MI
48824-1039**

LIVINGSTON COUNTY

EMERGENCY SERVICES ANALYSIS

AUGUST 2001



Prepared by:

Lynn R. Harvey
Professor and Extension Specialist
Department of Agricultural Economics
Michigan State University
East Lansing, MI 48824-1039

William H. Shields
Research Assistant
Department of Agricultural Economics
Michigan State University
East Lansing, MI 48824-1039

In Cooperation with:
Livingston County Board of Commissioners,
Livingston County Emergency Medical Services,
Brighton Area Fire Authority,
Howell Fire Department,
and County Fire Departments

Livingston County Emergency Services Analysis

I.	Overview of Livingston County	3
II.	Population Growth in Livingston County	4
III.	Growth in Livingston County's Tax Base	5
IV.	Livingston County 911 Dispatch and Emergency Management Center	7
V.	Livingston County Emergency Medical Services.....	8
VI.	Fire Departments	14
i.	Argentine Fire Department.....	15
ii.	Brighton Area Fire Authority	16
iii.	City of Fenton Fire Department	17
iv.	Fowlerville Fire Department.....	19
v.	Green Oak Township Fire Department.....	20
vi.	Hamburg Fire Department	21
vii.	Hartland Township Fire Department.....	22
viii.	Howell Fire Department.....	24
ix.	Putnam Township Fire Department.....	25
x.	Unadilla Fire Department	26
VII.	Cross-Department Comparisons	27
VIII.	Insurance	30
IX.	Observations.....	32
i.	Personnel.....	32
ii.	Financial Management.....	33
iii.	Emerging Issues.....	34
iv.	Structural and Organizational Issues	34
	Appendix A: Livingston County EMS Response Classification System.....	38
	Appendix B: Top 25 Automobile Crash Intersections in Livingston County	39
	Appendix C: EMS Runs by Location, 1996-2000.....	40
	Appendix D: Livingston County EMS Response Times in 2000.....	41
	Appendix E: Brighton Area Fire Authority Fire Service Fee Schedule.....	42
	Appendix F: In-Kind Contributions by Howell Fire Department Fire Fighters.....	43
	Appendix G: Sample Operating Cost Worksheet for Public Education	47

I. Overview of Livingston County

Livingston County is located in the southeastern corner of Michigan's Lower Peninsula, between the cities of Detroit, Flint, Lansing, and Ann Arbor. The county is politically divided into sixteen townships, two cities, and two villages, and has a total area of approximately 571 square miles. The 2000 U.S. census counted 156,951 inhabitants in Livingston County, a population increase of 35.72 percent from 115,645 in 1990. Census Bureau forecasts indicate that if this growth trend continues, the county's population will reach more than 220,000 by 2020, an increase of almost 42 percent from 2000. This rate of population growth is currently the highest of all counties in the state of Michigan and ranks Livingston County 15th in population among all Michigan counties.

Rapid population growth challenges the ability of local government to keep pace with increasing and changing demand for public services. These challenges may be physical or organizational in nature. Physical challenges arise from the need to upgrade public infrastructure such as water and sewer service, roads, schools, and emergency services. Although installation of new infrastructure is always expensive, growth-related increases in the tax base provide new revenue for installation of new services. However, when slowing growth rates, aging infrastructure, and addition of expensive new services pressure local government to increase revenue from existing resources, decision-makers may then seek to reduce per-capita costs by reorganizing the method or structure of providing community services.

One way to reduce costs in government-provided services is to rethink relationships among local governments. For example, a city may decide to incorporate an adjoining residential area to lower the per-capita cost of a new waste treatment facility, or several lightly populated townships may decide to collectively finance a police or fire department. These types of inter-governmental cooperation can be difficult to organize, even when economic analysis clearly indicates that greater coordination creates substantial savings. One impediment to reorganization is that a community's preferences may trump economic reality. For example, townships and villages may perceive that consolidating a service or engaging in joint production may diminish an individual local unit's control over the service.

II. Population Growth in Livingston County

Growth in Livingston County does not occur evenly among townships and cities. The Southeast Michigan Council of Governments (SEMCOG) projects that the greatest growth will continue to occur in the southeast quadrant of the county and in communities with easy access to Interstate 96 and U.S. 23. These areas are primarily located in Brighton, Genoa, Green Oak, and Hamburg townships. U.S. Census projections indicate that township growth rates will be significantly higher than city and village growth rates over the next twenty years. Although lightly populated now, Iosco, Marion, and Conway townships are projected to grow at rates of 150 percent or more between 2000 and 2020.

Table 1: Population in Livingston County Townships, Villages, and Cities, 1990-2020

	1990	2000	2010*	2020*	1990-2000 % Change	2000-2010 % Change	2010-2020 % Change	1990-2020 % Change
<i>Townships</i>								
Brighton	14,541	17,673	19,699	21,505	21.54	11.46	9.17	47.89
Cohoctah	2,693	3,394	4,175	4,849	26.03	23.01	16.14	80.06
Conway	1,818	2,732	3,463	4,479	50.28	26.76	29.34	146.37
Deerfield	3,000	4,087	4,967	5,400	36.23	21.53	8.72	80.00
Genoa	10,790	15,901	19,909	22,596	47.37	25.21	13.50	109.42
Green Oak	11,604	15,618	20,180	25,193	34.59	29.21	24.84	117.11
Hamburg	13,077	20,627	26,577	31,864	57.73	28.85	19.89	143.66
Handy	2,840	4,032	5,619	7,159	41.97	39.36	27.41	152.08
Hartland	6,860	10,996	12,865	14,706	60.29	17.00	14.31	114.37
Howell	4,298	5,679	7,714	10,640	32.13	35.83	37.93	147.56
Iosco	1,567	3,039	4,163	5,523	93.94	36.99	32.67	252.46
Marion	4,893	6,757	9,697	14,353	38.10	43.51	48.01	193.34
Oceola	4,773	8,362	9,405	9,669	75.19	12.47	2.81	102.58
Putnam	4,586	5,359	6,175	6,664	16.86	15.23	7.92	45.31
Tyrone	6,854	8,459	10,409	12,322	23.42	23.05	18.38	79.78
Unadilla	2,949	3,190	3,746	4,338	8.17	17.43	15.80	47.10
<i>Village</i>								
Fowlerville	2,648	2,972	3,182	3,224	12.24	7.07	1.32	21.75
Pinckney	1,603	2,141	2,232	2,290	33.56	4.25	2.60	42.86
<i>City</i>								
Howell	8,261	9,232	9,479	8,965	11.75	2.68	-5.42	8.52
Brighton	5,990	6,701	6,869	6,825	11.87	2.51	-0.64	13.94
<i>Totals</i>								
Townships	97,143	135,905	168,763	201,260	39.90	24.18	19.26	107.18
Villages	4,251	5,113	5,414	5,514	20.28	5.89	1.85	29.71
Cities	14,251	15,933	16,348	15,790	11.80	2.60	-3.41	10.80
County Total	115,645	156,951	190,525	222,564	35.72	21.39	16.82	92.45

Source: 2000 Data Book, Livingston County Department of Planning, US Census Bureau

* 2010 and 2020 estimates have been adjusted by authors to reflect actual 2000 population data.

III. Growth in Livingston County's Tax Base

Three tax categories contribute to Livingston County residents' total millage rate. Livingston County uses millage to provide countywide services such as the court system, sheriff, elections, property recording, and mental health. Local units of government provide township, city, or village services through property-based millage. Although a majority of funds needed for local schools are now generated through the state education tax, the increase in population places demand for additional school building construction financed through debt millage.

The current rapid expansion of the tax base in Livingston County allows county officials to increase spending on public services without creating disproportionately large tax burdens for taxpayers. In 1995, the taxable value of all property in Livingston County was \$3.280 billion. By 1999, this taxable value had risen to \$4.619 billion, an increase of 40.81 percent in just five years. During this time, Headlee rollbacks required county millage decreases of 0.39 mill., or -8.17 percent, to 4.47 mill. Despite this decrease in the millage rate, the county tax levy still generated \$20.628 million, 29.30 percent more than the 1990 levy of \$15.954 million. Local millage rates increased over the same period by 0.56, or 14.27 percent, to 4.45 mill. This millage brought in tax revenue of \$20.538 million, an increase of 60.91 percent.

Table 2: Comparison of County and Local Millage Rates and Revenue

	Total TV	County		Local*		All Property
		Rate	Taxes	Rate	Taxes	Taxes
1995	3,280,297,072	4.86	15,954,052	3.89	12,764,001	76,465,897
1999	4,619,011,950	4.47	20,628,968	4.45	20,538,700	109,051,250

*Local is township, city, and village millage

Table 3 compares the difference in tax growth and revenue in townships and cities between 1995 and 1999. In 1999, townships accounted for 89.65 percent of taxable value in Livingston County. Between 1995 and 1999, taxable value in townships grew by 41.54 percent and millage rates by 29.36 percent, creating an increase in tax revenue of 83.09 percent. During the same period, taxable value in cities grew by 34.81 percent, millage rates by 2.29 percent, and tax revenue by 37.90 percent. There is a wide gap between the millage rates for townships and cities in Livingston County. The principal reason for this difference is the requirement for a greater number of services in the cities, such as public water and sewer, streetlights, and sidewalks. While homeowners in townships generally bear these costs directly, millage rates will increase as townships grow and provide additional services to accommodate the demands of a suburban population. Table 3 illustrates how the level of services that townships provide will slowly begin to converge with those provided in cities as township population density rises.

Table 3: Comparison of Tax Growth and Revenue in Townships and Cities

	1995	1996	1997	1998	1999	% Change 95-99
County						
Taxable Value	3,280,297,072	3,537,259,176	3,870,945,206	4,227,228,907	4,619,011,950	40.81
County Millage	4.86	4.85	4.76	4.73	4.47	-8.17
County Tax \$	15,954,052	17,150,047	18,440,024	19,996,483	20,628,968	29.30
Township						
Taxable Value	2,925,864,372	3,156,928,021	3,463,852,752	3,789,453,540	4,141,196,814	41.54
Township Millage	2.22	2.21	2.61	2.78	2.87	29.36
Township Tax \$	6,499,669	6,980,169	9,056,674	10,547,108	11,900,386	83.09
City						
Taxable Value	354,432,700	380,331,155	407,092,454	437,775,367	477,815,136	34.81
City Millage	17.67	17.92	18.01	18.25	18.08	2.29
City Tax \$	6,264,332	6,813,768	7,331,861	7,990,134	8,638,314	37.90

Table 4 presents the taxes that the owner of property with a taxable value of \$100,000 could expect to pay in a city and in the average township. The calculation assumes that the property has only one owner during this period, thus holding the maximum change in the Taxable Value (TV) of the property to the rate of inflation.¹ This example illustrates the effect of growth-related demand for services in the townships. Cities, with slower growth rates and mature service infrastructure, do not need to significantly increase non-school millage rates to meet their revenue needs. Thus, a 29.36 percent increase in the average township millage rate yields a 42.79 percent increase in tax paid by the hypothetical property owner between 1995 and 1999. The owner of an identically valued property in a city could expect to see a total millage increase of 2.29 percent and pay 12.91 percent more in tax between 1995 and 1999.

Table 4: Comparison of City and Township Tax Burdens

Tax Burdens	1995	1996	1997	1998	1999	% Change 95-99
Property Value	100,000	102,600	105,165	107,479	110,381	10.38
Compound Inflation Mult	1.000	1.026	1.052	1.075	1.104	10.38
City Millage	17.67	17.92	18.01	18.25	18.08	2.29
City Taxes	1,767	1,838	1,894	1,962	1,996	12.91
Township Millage	2.22	2.21	2.61	2.78	2.87	29.36
Township Taxes	222	227	275	299	317	42.79

Table 5 details property millage rates in Livingston County townships and cities in 1995 and 1999. Although property in the townships accounts for 89.66 percent of the county's total taxable value, tax revenue in townships account for only 57.94 percent of local property tax revenue. Among townships, Green Oak and Hamburg raise the most revenue through local millage at 10.65 and 9.50 percent of total local revenue. Not surprisingly, the

¹ Millage rates for townships and cities in the following analysis are average millage rates based on the total tax levy. This calculation accounts for differences in the total Taxable Value between individual cities and townships.

cities of Brighton and Howell each account for at least 20 percent of total local revenue. Unadilla and Putnam townships showed the greatest increase in tax revenue raised over the period 1995-1999, at more than 200 percent each.

Table 5: Local Millage Rates and Tax Revenue

	1995			1999			1995-99
	Rate	Taxes	% Total	Rate	Taxes	% Total	% Change
<i>Townships</i>							
Brighton	1.95	948,483	7.43	2.14	1,347,153	6.56	42.03
Cohoctah	2.56	151,575	1.19	2.39	170,667	0.83	12.60
Conway	2.91	120,656	0.95	4.41	254,829	1.24	111.20
Deerfield	2.31	175,761	1.38	2.83	278,514	1.36	58.46
Genoa	2.18	795,369	6.23	2.01	1,119,290	5.45	40.73
Green Oak	2.46	994,339	7.79	3.96	2,186,456	10.65	119.89
Hamburg	2.32	915,681	7.17	3.37	1,951,230	9.50	113.09
Handy	2.12	200,369	1.57	2.02	266,573	1.30	33.04
Hartland	2.27	509,548	3.99	3.73	1,240,467	6.04	143.44
Howell	3.30	387,046	3.03	3.16	560,557	2.73	44.83
Iosco	3.24	138,682	1.09	2.96	185,379	0.90	33.67
Marion	2.31	308,310	2.42	2.12	364,796	1.78	18.32
Oceola	3.22	362,634	2.84	3.29	648,610	3.16	78.86
Putnam	1.49	204,262	1.60	3.56	660,945	3.22	223.58
Tyrone	1.04	191,697	1.50	1.22	327,601	1.60	70.90
Unadilla	1.88	95,256	0.75	5.27	337,318	1.64	254.12
<i>City</i>							
Howell	17.87	3,185,826	24.96	17.54	4,102,486	19.97	28.77
Brighton	17.48	3,078,506	24.12	18.59	4,535,828	22.08	47.34
Total Twnshp	2.22	6,499,669	50.92	2.87	11,900,386	57.94	83.09
Total City	17.67	6,264,332	49.08	18.08	8,638,314	42.06	37.90
Total Co.	3.89	12,764,001	100.00	4.45	20,538,700	100.00	60.91

IV. Livingston County 911 Dispatch and Emergency Management Center

The Livingston County 911 Central Dispatch and Emergency Management Center (911-CD) is responsible for coordinating emergency services throughout Livingston County. The 911-CD is located in the City of Howell and is staffed 24 hours a day throughout the year. Teams of between 4 and 5 call takers and dispatchers work two 12-hour shifts. The center is financed through a \$2.75 surcharge on each phone line in Livingston County. In 2000, this surcharge provided over \$3 million to finance the center's operations.

When someone calls the 911-CD, a call taker routes the call to one of three dispatchers, police, fire, or EMS. Fire dispatchers coordinate the activities of individual fire departments and dispatch mutual aid and other resources, as individual circumstances require. EMS dispatchers coordinate the activities of the Livingston County EMS, fire departments, and any other resources that the situation requires. 911-CD dispatchers use an

emergency medical dispatch protocol to provide a dispatch priority and assist injured callers until an ambulance or fire department arrives on the scene.

The 911-CD sends fire departments to emergency medical situations according to the level of response that each fire department wishes to provide. This classification system is set by the mutual aid agreement between each of the 10 fire districts and EMS. The 911-CD automatically dispatches class one fire departments to every EMS call in its district. For class two departments, the 911-CD sends fire departments to EMS calls only for potentially life threatening situations such as heart attack, stroke, difficulty breathing, unconsciousness, and severe burns. Dispatch also occurs if EMS is delayed or the caller or emergency personnel request fire department assistance. Class three fire departments respond only upon the request of the caller, police, EMS, or other fire departments. Because many life-threatening conditions require the full attention of two paramedics, EMS can 'borrow' personnel from responding fire departments to provide a third person to assist with patient transport. Because fire departments are sometimes dispatched to incidents where EMS does not require their assistance, the 911-CD, fire departments, and EMS are currently in the process of updating emergency medical dispatch protocols. These new protocols should help reduce the number of medical situations that fire departments respond to.

The center receives and generates around 900 telephone calls each day. In FY 2000, the 911-CD handled a total of 272,927 calls, including 37,719 police, 4,812 fire, and 9,072 EMS dispatches. Administrative calls make up 54.27 percent of the center's activity. These include the notification of social services in emergency situations and coordinating police department activities. For example, when a police officer makes a traffic stop, a call is made to the 911-CD to run the license plate and to check the vehicle occupants for outstanding warrants. Police officers on duty call the center periodically to update their location and status.

In the future, technology will allow many of these calls to bypass the 911-CD call takers. By the end of 2002, the 911-CD will have the capacity to track the location of individual police officers, fire trucks, and ambulances using Automatic Vehicle Locators (AVLs). The 911-CD will also soon install the capacity to support mobile data systems. These systems allow police officers to check licenses and registrations from their cars and EMS and fire department vehicles to access the 911-CD database.

V. Livingston County Emergency Medical Services

Countywide emergency medical services for Livingston County began in 1970 when the county Board of Commissioners assumed control of existing ambulance services located in the towns of Brighton and Howell. For the first ten years of countywide service, Livingston County EMS funded its operations through a combination of general fund appropriations and fees-for-service. Between 1970 and 1980, the level of service provided by EMS remained mostly unchanged, with the county continuing to operate two 24-hour ambulance crews. In 1982, EMS added a third 24-hour unit. At this time, EMS also upgraded the level of care provided by ambulance crews, from Basic Life Support (BLS) to

Advanced Life Support (ALS). The late 1990s saw a rapid expansion in the coverage provided by Livingston County EMS, with the addition of 24-hour units in 1994 and 1995 and one 12-hour peak time unit in 2000. To house these units, EMS built new stations in Hartland, Hamburg, and Brighton townships, and rented space in Howell.

In 1980, voters in Livingston County approved a 0.5 mill. increase in their property taxes to fund Livingston County EMS. This dependable source of revenue made many of the service improvements of the past 15 years possible. While growth in Livingston County's taxable value has certainly helped EMS to decrease its millage rate, strong revenue from charges for services allows EMS to minimize the public cost of emergency services.

Between 1995 and 2000, EMS received an average of 51 percent of its revenue from charges for services (CS). In 2000, EMS revenue consisted of \$1.166 million in tax revenues and \$1.710 million in CS, for total revenue of \$3.168 million. The primary source of CS revenue is the Medicare program. Medicare reimbursed calls are generally for medical incidents and inter-facility transport and account approximately 36 percent of EMS CS revenue. An additional 15 percent of CS revenue comes from Blue Cross-Blue Shield and 5 percent from Medicaid. EMS also bills more than 1,800 different private insurance companies.² Payments from people without insurance represent about 4 percent of CS revenue. If efforts to collect payment from individuals are unsuccessful, EMS turns the bill over to a collection agency. Aggressive bill collection policies result in a collection rate of approximately 85 percent.

Table 6: EMS Combined Statement of Revenues, Expenditures, and Fund Balance

	1995	1996	1997	1998	1999	2000
Millage Rate	0.43	0.43	0.43	0.43	0.43	0.25
Tax Revenue	1,366,829	1,463,194	1,558,015	1,696,623	1,858,236	1,166,179
Charges for Services	378,469	2,005,998	2,315,381	1,827,970	1,389,896	1,710,425
Investment / Rentals	43,031	61,361	139,748	211,694	246,098	291,169
Other	0	0	5,935	156	0	0
Total Revenue	1,788,329	3,530,553	4,019,079	3,736,443	3,494,230	3,167,773
Total Expenditures	1,861,302	2,079,138	2,274,286	2,525,461	2,910,313	3,189,622
Other Sources (Uses)	0	(17,301)	0	0	0	0
Net Transfers	0	0	(400,000)	(308,500)	0	0
Excess (Deficiency)	(72,973)	1,434,114	1,344,793	902,482	583,917	(21,849)
BOY Fund Balance	695,364	622,391	2,056,505	3,401,298	4,303,780	4,887,697
EOY Fund Balance	622,391	2,056,505	3,401,298	4,303,780	4,887,697	4,865,848

Source: Livingston County Treasurer / Annual Financial Reports

In practice, EMS rates are not determined by the actual cost of providing emergency medical services, but by Medicare's reimbursement rates. EMS could charge a higher rate for its services, but it would not be able to collect this rate on at least 39 percent of its invoices. Furthermore, when negotiating rate schedules with EMS, most private insurers attempt to tie their reimbursement schedules to the Medicare rates. Thus, by setting its rate

² Part of the reason Livingston County EMS deals with a large number of insurance companies is that many calls are responses to emergencies on I 96 and US 23.

schedule at the Medicare rate, rather than actual costs, EMS avoids having to write off a substantial portion of its billing as bad debt. Because Medicare reimbursement rate changes are phased in slowly and take up to 3 years to become fully implemented, EMS rates reflect a best estimate of the future maximum allowable rate.

Table 7: Livingston County EMS Rate Schedule – Effective July 1, 2001

Care Level	Quantity	Rate	Est. Annual Revenue
Basic Life Support	789	170.00	134,130
Basic Life Support -E	783	275.00	215,325
Advanced Life Support 1	145	205.00	29,725
Advanced Life Support 1 -E	4,102	325.00	1,333,150
Advanced Life Support 2	Unkn	470.00	Unkn
Mileage	100,000	5.25	525,000
Total			2,237,330

Source: Livingston County EMS

Livingston County EMS currently has five EMS stations. These are located in Hamburg, Brighton, Howell, and Hartland townships and Howell City. By 2002, the Howell city station will move into a new building in neighboring Genoa Township. EMS currently has 12 ambulances and one SUV equipped for off road assistance. Other major equipment includes one all-terrain vehicle and an emergency aid trailer stocked with enough supplies to care for 50 individuals. With the exception of Howell Township, each station has two ambulances and sleeping and kitchen facilities. The Howell Township station houses the EMS main offices, four ambulances, and medical supply storage in addition to sleeping and kitchen facilities for 10 paramedics. EMS supervisors rotate the six ambulances in active service with six in reserve to ensure that all crews use fully functional equipment. EMS also uses these reserve ambulances to expand emergency service when all scheduled crews are out on call. During times of heavy call volume, it is possible to have all twelve units on duty.

Table 8: Value of Livingston County EMS Fixed Assets in 2001

Asset Type	2000
EMS Stations	1,200,000
EMS Vehicles	1,449,004
Station 1 Equipment	223,037
Total	2,872,041

Source: Livingston County EMS

Livingston County EMS employs 10 office and supervisory staff, 34 full-time, and 20 part-time ambulance crew. All full and part-time employees are paramedics, with the exception of three part-time staff, who are EMT specialists. Paramedics are qualified to provide basic first aid, such as CPR, wound care, splinting fractures, and giving oxygen. They also can monitor cardiac function, administer drugs, and perform IV therapy. Becoming a paramedic requires a minimum of 1,250 hours of training and successful completion of a written and practical examination. In addition, each paramedic must continue training and be re-licensed every three years.

EMS expects that the number of hours required for paramedic re-licensing will increase from 45 to 108 hours within the next 1-2 years. In the same period, the number of hours needed to become a paramedic will increase to 1,700 hours from the current 1,250 hours. Because changing reimbursement rates is a long process, EMS cannot currently recover the expense of this additional training, nor can paramedics recover the added cost of their original certification through higher pay rates.

High and sustained rates of population growth in Livingston County and increased motor vehicle traffic on I-96 and US 23 fuel a nearly constant need to increase the number of EMS crews and equipment. Population growth in the county by itself creates an immense structural increase in demand for EMS. Between 1970 and 2001, Livingston County's population grew by 102,491 people, or 173.81 percent. However, this increase pales in comparison with the 646.83 percent increase in the number of calls that EMS responded to over the same period (Tables 9, 10). Clearly, factors other than population growth alone are responsible for this dramatic increase in calls.

Table 9: EMS Run Volumes

	1970	1980	1990	1997	1998	1999	2000	2001*
Total Runs	1,339	3,024	5,403	7,671	7,783	8,506	9,394	10,000
Population	58,967	100,289	115,645	141,853	146,317	151,496	156,951	161,458
Runs/1000 Pop	22.71	30.15	46.72	54.08	53.19	56.15	59.85	61.94

*Estimated Total 2001 Volume Source: US Census, Livingston County EMS

Figure 1: Livingston County EMS Calls per 1000 of Population

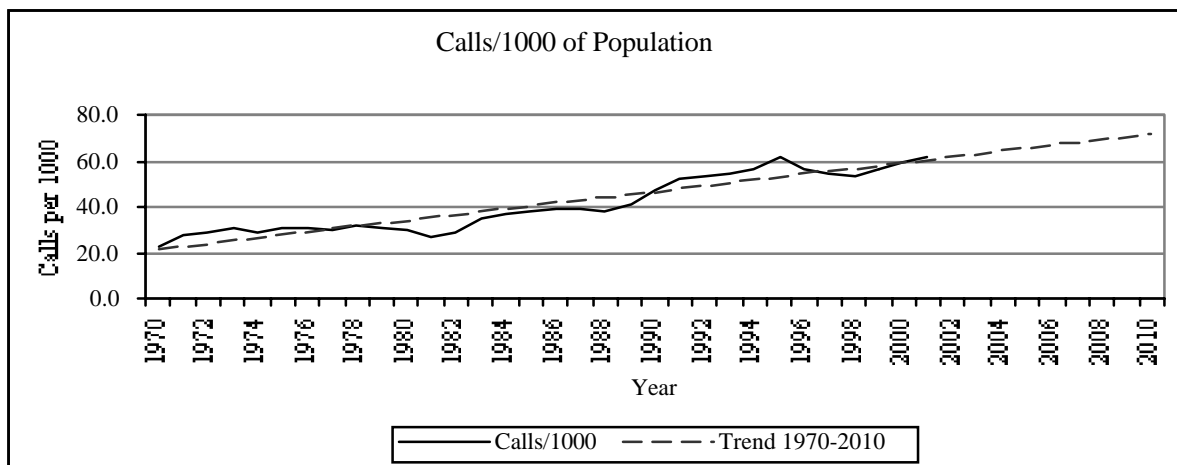


Table 10: Percent Change in EMS Run Volumes

	1970-79	1980-89	1990-99	2000-01	1970-2001*
	% Change	% Change	% Change	% Change	% Change
Total Runs	119.64	53.77	57.43	6.45	646.83
Population	63.99	12.23	31.00	2.87	173.81

*Based on Estimated 2001 Volume of 10,000 Runs

Two trends related to population growth increase demand for EMS. First, demand for EMS reflects demographic changes. For example, in 1980, the median age for Livingston County residents was 28.2 years. By 2000, the median age had risen to 36.2. The Census Bureau currently projects it to reach 39.0 in 2020. Over the next 20 years, the aging population of Livingston County will cause EMS call volume to increase for both emergencies, such as strokes and heart attacks, and non-emergencies, such as transporting invalid patients between hospitals and nursing homes.

Second, injury accidents on roads in Livingston County also are responsible for a share of EMS calls. Traffic volume is one factor in the overall incidence of automobile accidents. Livingston County's location between the cities of Flint, Ann Arbor, Detroit, and Lansing means that large numbers of county residents commute to work outside the county, and that travel through the county on Interstate 96 and U.S. Highway 23 has also increased (Appendix B). In 1970, 45 percent of county residents commuted outside the county to work. By 1990, more than 57 percent commuted outside the county to work. Not surprisingly, only 52 percent of county residents live within 30 minutes of their place of work, compared to the statewide average of 71 percent.

A final factor that increases the total number of runs by Livingston County EMS is non-critical patient transport. Insurance companies and federal medical programs reimburse ambulance services for transferring non-ambulatory patients from one medical or care facility to another. Since this type of transport can be scheduled in advance and postponed as necessary, they can provide significant revenue to an ambulance company without straining existing resources. In 2000, Livingston County EMS made 2,513 transports, representing 26.75 percent of all runs. Trips to McPherson hospital in Howell account for the majority of all transport runs, reaching 1,435 in 2000, or 15.28 percent of all EMS runs (Appendix C).

In 2000, townships accounted for 86.59 percent of emergency runs, cities 10.15 percent, and villages 3.26 percent. Expressed in terms of emergency runs per 1,000 inhabitants, townships averaged 38.72, cities 80.46, and villages 65.91. So, although townships have more inhabitants than cities or villages, cities and villages are responsible for a disproportionate share of EMS emergency runs.

Figure 2: Unit Percentage Share of EMS Emergency Runs, 2000

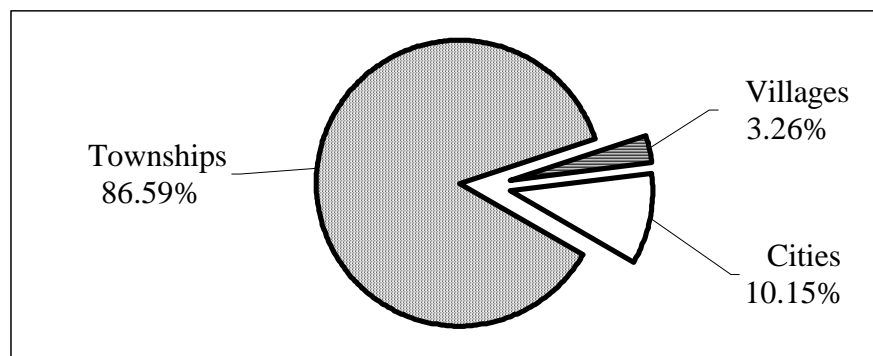


Table 11: 2000 Livingston Co. EMS Emergency Runs and Population

	2000	2000	2000	2000	2000
	Runs	% Total Runs	Population	% Total Pop.	Runs/1000
Township					
Brighton	814	11.83	17,673	11.26	46.06
Cohoctah	115	1.67	3,394	2.16	33.88
Conway	64	0.93	2,732	1.74	23.43
Deerfield	115	1.67	4,087	2.60	28.14
Genoa	857	12.45	15,901	10.13	53.90
Green Oak	603	8.76	15,618	9.95	38.61
Hamburg	593	8.62	20,627	13.14	28.75
Handy	165	2.40	4,032	2.57	40.92
Hartland	481	6.99	10,996	7.01	43.74
Howell	364	5.29	5,679	3.62	64.10
Iosco	59	0.86	3,039	1.94	19.41
Marion	194	2.82	6,757	4.31	28.71
Oceola	230	3.34	8,362	5.33	27.51
Putnam	244	3.55	5,359	3.41	45.53
Tyrone	244	3.55	8,459	5.39	28.85
Unadilla	120	1.74	3,190	2.03	37.62
Village					
Fowlerville	244	3.55	2,972	1.89	82.10
Pinckney	93	1.35	2,141	1.36	43.44
City					
Howell	664	9.65	9,232	5.88	71.92
Brighton	618	8.98	6,701	4.27	92.23
Sub-Totals					
Townships	5,262	76.47	135,905	86.59	38.72
Villages	337	4.90	5,113	3.26	65.91
Cities	1,282	18.63	15,933	10.15	80.46
County	6,881	100.00	156,951	100.00	43.84

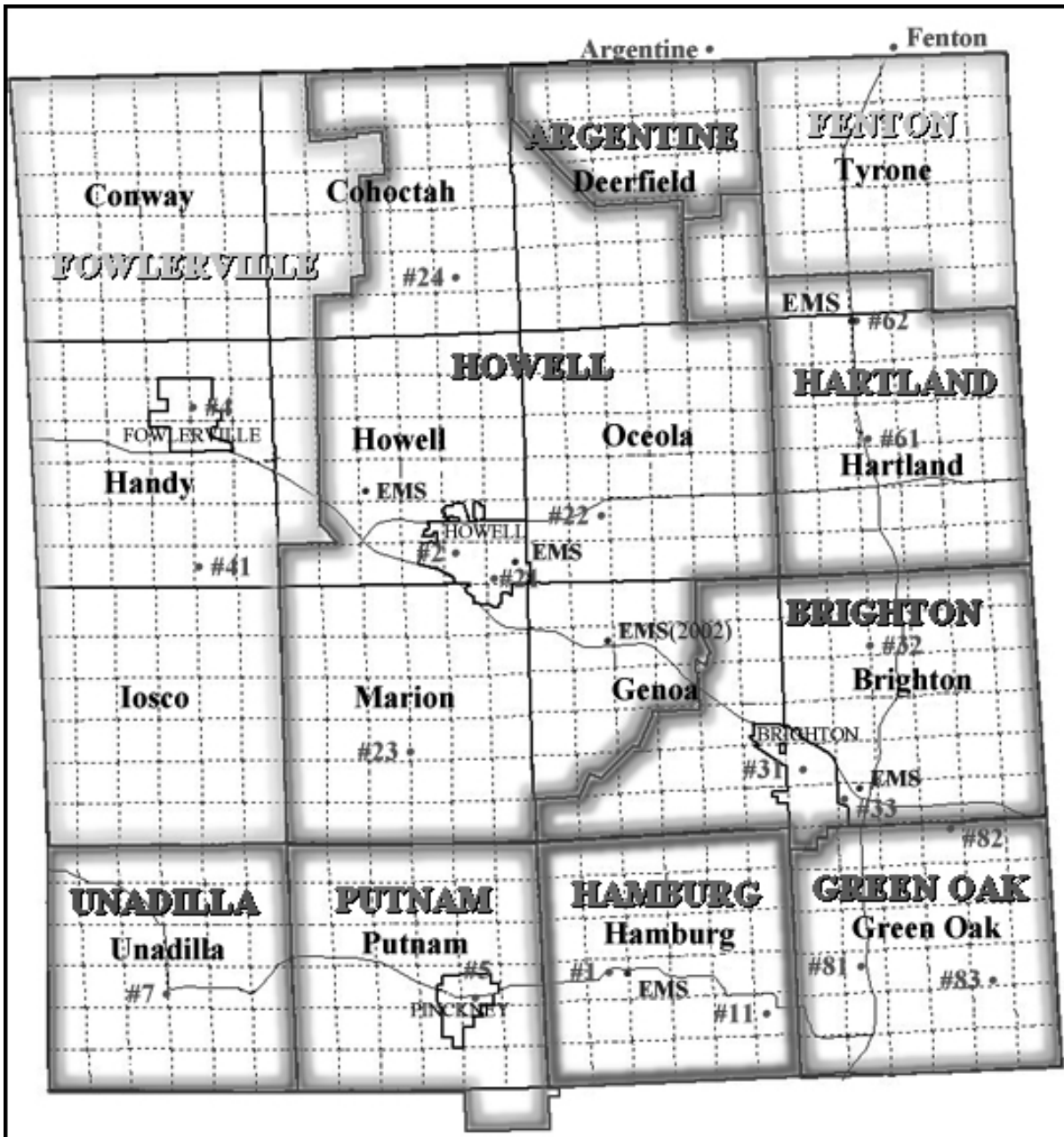
Source: Livingston Co. EMS, U.S. Census Bureau

Time is the enemy in every emergency situation. Response times are one indicator of the effectiveness of the ambulance service. Weather and traffic conditions, location of available ambulances, distance to the scene, and the accuracy of the 911 dispatch are important factors that affect response times. The average EMS response time for emergency calls in 2000 was 8.72 minutes, down 8.69 percent from 9.55 minutes in 1996. Appendix D provides a detailed breakdown of emergency runs by township, village, and city. EMS had the best under 10 minute response time for cities, at 84.53 percent, followed by villages at 51.97 percent, and townships at 48.14 percent.

VI. Fire Departments

Ten separate fire departments serve Livingston County. Two of these, Argentine FD and City of Fenton FD are located in Genesee County, but contract with townships in northern Livingston County. Three departments, Howell FD, Brighton Area Fire Authority, and Fowlerville FD provide service to several townships through formal or informal fire authorities. All remaining fire departments primarily operate within their individual townships. The following sections describe each fire department and provide detail on some of the challenges that these departments face.

Figure 3: Map of Livingston County Fire Department and EMS Facilities



i. Argentine Fire Department

The Township of Argentine Fire and Rescue Department (ATFD) is located in southern Genesee County. In addition to serving Argentine Township, the ATFD provides fire protection to Deerfield Township in northern Livingston County through a formal contract. The contract with Deerfield Township covers sections 1-6, 8-16 and parts of sections 7, 17, and 23. This area does not contain major highways or population centers, but does contain a number of lakes and several associated recreational areas.

For many years, Deerfield Township paid a flat annual fee of \$6,950 to Argentine Township for fire and rescue services. For FY 2001, Deerfield Township will begin to pay a flat fee of \$10,000 and \$850 for each fire and \$350 for each medical run made by ATFD. To fund their fire department, Argentine Township residents pay a special assessment of \$85 per house. The special assessment raised \$170,660 in FY 2000. The ATFD does not charge additional fees unless cleanup of hazardous materials is required or if it is called to extinguish an illegal burn. Fees paid by Deerfield Township and all successful cost recovery efforts are placed directly into the ATFD capital improvement fund. The sum of all fire department expenditures in FY 2000, including capital expenditures, was \$163,926.

The ATFD operates out of station number 47 in Linden, Genesee County. This station was built in 1975 and underwent a major renovation and expansion in 1995. The department currently maintains fire fighting equipment of 3 pumpers, one tanker, one grass rig, one medical first-responder unit, one medium rescue truck, and one water/ice rescue boat.

ATFD responds to all fires and medical calls in its service area. In 1998, ATFD responded to a total of 247 calls. Of these, 52.63 percent were rescue calls that usually concur with an ambulance response. Another 17.41 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 13.36 and 16.60 percent, respectively. In all, the ATFD accounted for approximately one percent of fire department runs in Livingston County.

There are 26 active fire fighters in the ATFD out of 30 possible positions. The remaining 4 positions have been unfilled for more than one year. The department chief and assistant chief are paid on a part-time basis, and the fire fighters are paid an hourly rate when on call. In FY 1999, fire fighters received total compensation of \$52,564.

The length of time that the department has maintained four open fire fighter positions is an issue of considerable concern to the ATFD. In addition, the number of fire fighters who work outside the township has increased in recent years, creating personnel shortages during the daytime. Because of this, the department sees the need to employ fire fighters in the near future. These positions would initially be filled on a day to day basis by individual fire fighters, rather than a single employee. The department is likely to create a full-time fire chief and one secretarial position at this time. Because ATFD serves a lightly populated area, the future full-time fire chief position will combine fire chief and fire marshal duties in

one position. By 2010, the department estimates that it may have the equivalent of 8 full-time positions, including the fire chief and secretary.

The ATFD also foresees the necessity of building a new firehouse by 2012. The current facility shares a parking lot with the township municipal offices. When this parking lot is full, the fire trucks can have difficulty exiting and entering the firehouse. Also, the current firehouse has no room for additional equipment or replacement trucks of greater size. To fund these changes, the residents of Argentine Township face assessment increases over the next few years. The construction of a new firehouse and equipment replacement costs will also increase the need for increased revenue.

ii. Brighton Area Fire Authority

The Brighton Area Fire Authority (BAFA) is located in southern Livingston County. In addition to serving Brighton Township, the BAFA provides fire protection to the city of Brighton, and Genoa Township. A successful August 2001 millage vote allows the fire authority to contract directly with the Howell Fire Department to cover sections 3-10, 15-21, 30 and parts of sections 11 and 29 in Genoa Township. Interstate 96 and U.S. Highway 23 intersect just outside the Brighton City limits, with a combined distance of 16.13 miles running through the BAFA service area.

Brighton City and Brighton Township fire departments have operated separately since 1975. However, in July 2000, the two merged operations and, along with Genoa Township, currently operate as the Brighton Area Fire Authority. Residents support the BAFA through their respective general funds. Through the agreement that set up the fire authority, Brighton, Brighton City, and Genoa Townships pay the authority on a contractual basis and the BAFA leases its fire halls from each authority member for a nominal fee.

In FY 2001, the city's contract with the BAFA will cost \$400,000. By comparison, the city paid \$483,792 for fire service in FY 2000. In FY 2000, Genoa Township paid the BAFA \$138,000 for fire service. Starting in July 2000, the BAFA began to recover costs associated with automobile fires and accidents. Residents of the fire district pay only 10 percent of any cost recovery billing, and only billing amounts greater than \$100 (Appendix E). Between July 2000 and June 2001, BAFA recovered approximately \$20,000. This cost recovery effort is headed by one of the fire fighters.

Including township contributions to capital equipment, the BAFA expended a total of \$852,715 in FY 2000. Of this amount, personnel pay and benefits accounted for 66.81 percent of all expenditures. Operational costs accounted for 24.74 percent, followed by capital improvement at 8.44 percent.

The BAFA operates one main station and two sub-stations. The main station, number 31, is located on Grand River Rd. in Brighton City and was built in 1982. This station contains the BAFA administrative offices and is equipped with 2 engines, one tanker, one platform, one medical rig, one squad, and one grass rig. Sub-station number 32 was built in

2000 and is located on old U.S. 23 near the intersection with Hyne Rd. Station 32 contains 2 engines, one tanker, and one squad truck. Sub-station number 33 was purchased in 1981 to serve as a firehouse. Station 33 contains one engine and one squad truck.

BAFA responds to emergency medical calls only upon the request of the caller, ambulance, police, or fire department personnel. In 1998, Brighton City and Township fire departments responded to a total of 933 calls. Of these, 47.05 percent were rescue calls that usually concur with an ambulance response. Another 13.72 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 8.90 and 30.33 percent, respectively. In all, the BAFA accounted for approximately 21 percent of fire department runs in Livingston County.

There are 55 active fire fighters on the BAFA roster. Employment in the BAFA consists of full-time positions for the department chief and two fire inspectors, and one part-time secretarial position. One of the fire inspector positions is fully funded through a contract with the authority, while the other is paid directly by the fire authority. Since 2000, the department has staffed the equivalent of two fire fighter positions two days a week, Tuesdays, and Fridays, on a 12-hour long shift. These positions are not held by individuals, but rotate among available fire fighters. All other fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$369,245.

The number of fire fighters who work outside the township has increased in recent years, creating personnel shortages during the daytime. The two part-time paid firefighter positions that started in 2000 were designed to start addressing this problem. However, the ability of BAFA fire fighters to fill even these positions has proven limited. Current budget constraints do not allow the BAFA to consider hiring full-time fire fighters at this time, further exacerbating the existing manpower shortage. This manpower shortage would undoubtedly be more severe if Brighton City did not have a very active junior fire department. This junior fire department is the oldest in the state of Michigan and has an average membership of between 8 and 14 children. One indication of the success of this program is the approximately 50 percent of current BAFA command officers who started as members of the junior fire department.

The BAFA is actively working with the Howell fire department to jointly build and operate a sub-station in Genoa Township. Although a final siting decision has not been made, the new sub-station will likely be located close to Grand River Rd., part way between Howell and Brighton.

iii. City of Fenton Fire Department

The City of Fenton Fire Department (CFFD) is located in the southeastern corner of Genesee County. In addition to serving the city of Fenton, the CFFD provides fire protection to Tyrone Township, with the exception of sections 31-34. U.S. 23 runs for 6.38 miles through Tyrone Township and passes through the city of Fenton.

City of Fenton residents support the CFFD through the city's general fund. In FY 2000, this support amounted to \$471,999. In addition, the City of Fenton transferred \$70,045 into a capital reserve fund. Tyrone Township pays the CFFD a flat fee of \$500 for each run. In FY 2000 Tyrone township paid a total of \$114,098 to CFFD for fire and rescue services. Tyrone Township received \$24,170 in FY 2000 as a result of cost recovery efforts in the zone covered by the CFFD. The CFFD recovers costs associated with hazardous material cleanups in Fenton.

Including purchases of capital equipment, the CFFD expended a total of \$500,623 in FY 2000. Of this amount, personnel pay and benefits accounted for \$337,598, or 67.44 percent of all expenditures. Operational costs accounted for \$123,174, or 24.60 percent, followed by capital improvement of \$39,851 at 7.96 percent.

The CFFD was founded in 1875. The current CFFD station was built in 1938 and is located in downtown Fenton. This station is equipped with one platform truck (1977), two pumper/tankers (1980, 1989), one engine (2001), one rescue truck (1999), one utility truck (1999), one mini-pumper (1986), one grass rig (1993), and one antique pumper (1931).

CFFD offers a class two response to emergency medical calls in Tyrone Township. In 1998, CFFD responded to a total of 443 calls. Of these, 38.15 percent were rescue calls that usually concur with an ambulance response. Another 15.35 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 25.06 and 21.44 percent, respectively. In all, the CFFD accounted for approximately 4 percent of all fire department runs in Livingston County.

There are 32 active fire fighters on the CFFD roster. Currently, the position of fire chief is vacant, but usually this is the only full-time employee in the department. Fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$290,894, or 58.11 percent of all CFFD expenditures.

The CFFD currently has a waiting list for future openings with the fire department. Several factors contribute to this fortunate situation. First, the city has a thriving commercial district with the type of work that allows employees to take time off to serve the community. Second, the CFFD has actively promoted itself in the community and works with a Boy Scout Explorer post. Many of the younger fire fighters became interested in fire fighting through this association.

The CFFD will move to a new firehouse in 2002. This new facility will allow the department the space necessary for future equipment upgrades as well as room for equipment storage and training. In the next five years the department foresees the need to increase the number of fire fighters, but has no plan to move to a full-time force. Growth in the city may allow the department to add a full time fire inspector position within 5 years. This service could be expanded to cover Tyrone Township if the department were allowed to fully recover the costs associated with fire inspections.

iv. Fowlerville Fire Department

The Fowlerville Fire Department (FWFD) is located along the western border of Livingston County. The FWFD provides fire protection to Conway, Handy, and Iosco townships, along with sections 6-8, 17-20, 29-31 and portions of sections 9, 16, 21, and 28 in Cohoctah township, and sections 6, 18, 19, and portions of sections 29 and 30 in Howell township. Interstate 96 runs for 6.8 miles through Handy Township and Fowlerville from east to west.

Townships and the village of Fowlerville support the FWFD through a system that charges each unit a set fee per dispatch. Medical and EMS assist runs have a flat rate of \$250 per call. The charge per fire run is set by subtracting medical/EMS run revenue from FWFD expenditures, then dividing the balance by the total number of runs. Every unit pays according to the number of runs attributable to them on a five-year rolling average. The department also charges each unit for capital outlay on a per-run basis. In FY 1999, the FWFD charged \$35,562 for a fire truck loan and \$50,000 to place in a fire equipment depreciation fund. Table 12 recreates the approximate revenue structure of the FWFD.

Table 12: Approximate Contribution of Units in Fowlerville Fire Department

	\$/Fire	\$/Med	Capital	# Fire	# Med	Fire Cost	Cap. Cost	Med. Cost	Total	% Total
Conway	220.40	250.00	518.56	25	41	5,510	12,964	10,250	28,724	15.16
Handy	220.40	250.00	518.56	76	88	16,750	39,410	22,000	78,161	41.26
Iosco	220.40	250.00	518.56	30	29	6,612	15,557	7,250	29,419	15.53
Fowlerville	220.40	250.00	518.56	22	97	4,849	11,408	24,250	40,507	21.38
Cohoctah	220.40	250.00	518.56	6	10	1,322	3,111	2,500	6,934	3.66
Howell	220.40	250.00	518.56	6	5	1,322	3,111	1,250	5,684	3.00
Misc.									22	0.01
Total				165	270	36,366	85,562	67,500	189,450	100.00

Source: Village of Fowlerville

Since the FWFD operates informally as a joint fire department, each unit is responsible for implementing its own cost recovery program. Handy and Cohoctah townships actively implement cost recovery programs, with Handy Township recovering \$22,102 in FY 1999. Creation of a formal fire authority, one that is authorized to ask taxpayers for a millage, should be a fairly straightforward matter since equipment and facilities are already jointly owned by the participating units.

Including transfers in and special revenue fund expenditures, the sum of all fire department expenditures in FY 1999³ was \$139,450. Of this amount, personnel pay and benefits accounted for \$58,598, or 42.02 percent. Operating costs accounted for \$43,059, or 30.88 percent followed by Capital improvement expenditures of \$37,793, or 27.10 percent.

The FWFD currently operates one fire station. The FWFD station, number 4, was built in 1980 and is located one block north of the intersection of Fowlerville Rd. and Grand

³ The Village of Fowlerville is in the process of switching to a new start date for its fiscal year, so data for FY 2000 is not yet available.

River Rd in Fowlerville. This station is equipped with two engines, two tankers, one pumper/tanker, two rescues, and two grass rigs. The FWFD will break ground on a new substation in fall 2001. This sub-station will be located near the intersection of Fowlerville Rd. and Colleen in southern Handy Township. When completed, the FWFD will move one engine, one tanker, one rescue, and one grass rig from the main station to equip the new facility. The FWFD decided to build a sub-station to better cover the southern portion of its service area and to eliminate train-related traffic delays in Fowlerville.

FWFD offers a class two response to emergency medical calls in its service area. In 1998, FWFD responded to a total of 348 calls. Of these, 68.97 percent were rescue calls that usually concur with an ambulance response. Another 14.08 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 8.62 and 8.33 percent, respectively. The FWFD accounted for approximately 8 percent of all fire department runs in Livingston County.

There are 26 active fire fighters on the FWFD roster out of a maximum of 30. For FY 2002, the department is authorized to increase the number of firefighters to 40. This increase reflects the need to staff the new sub-station. There are no paid full-time employees in the department. Fire fighters are paid an hourly rate for each call they respond to. In FY 1999, fire fighters received total compensation of \$45,522, or 32.64 of the FWFD budget.

The FWFD foresees the need to create at least one full-time fire fighter/fire inspector position in the next few years. This position would also be complemented by a part-time secretarial position. If the department ever formally organizes as a fire authority then it will seek to support its operations through millage.

v. Green Oak Township Fire Department

The Green Oak Township Fire Department (GOFD) is located in the southeastern corner of Livingston County. The GOFD provides fire protection to Green Oak Township with the exception of the parts of sections 5 and 6 that lie within the City of Brighton. U.S. Highway 23 runs for 7.5 miles through Green Oak Township, north to south.

Green Oak township residents primarily support the GOFD through two separate millage. A 0.5 mill levy on property is split 60 / 40 to support capital improvements and fire department operations, respectively. In FY 2000, this millage raised \$165,543 for capital improvement and \$110,338 for operations. A separate 0.25 mill levy on property provides revenue for the GOFD capital expenditure fund. The department uses this fund to purchase its fire trucks. In FY 2000, the capital expenditure fund received \$138,030 from this millage and expended \$105,206 in capital outlay. Additionally, Green Oak Township transferred \$156,220 into the GOFD's operating fund to support general fire department operations.

Including special revenue fund expenditures, the sum of all fire department expenditures in FY 2000 was \$426,200. Of this amount, personnel pay and benefits accounted for \$185,392 or 43.50 percent. Capital improvement expenditures accounted for

\$109,454 or 5.38 percent, followed by operating costs of \$131,354, or 30.82 percent. In FY 2000, the GOFD put \$10,112 into its general operations fund from cost recovery efforts. Revenue from cost recovery stagnated during most of FY 2000 due to decreased emphasis on collections. In the future, the GOFD will increase collection efforts, particularly for those costs associated with hazardous material cleanups.

The GOFD maintains three stations in Green Oak Township. The current GOFD main station, number 81, was built in 1991 and is located at the intersection of U.S. 23 and Silver Lake Rd. This station is equipped with one engine (2000), one tanker (1973), one platform (2000), one heavy rescue (2000), and one light rescue/brush rig (1986). Sub-station number 82 was built in 1981 and is located on Grand River Rd. near Briggs Lake. It is equipped with one engine (1991), one tanker (1994), one medium rescue (2001), and one squad/brush rig (1986). Sub-station number 83 was built in 2001 and is located near the intersection of Ten Mile Rd. and Rushton Rd. Station 83 is equipped with one engine (1982), one tanker (2001), one ladder truck (acquired in 1986 but built in 1965) one medium rescue (2001), and one squad/brush rig (1977). The department also owns and maintains one 4-wheel drive fire chief's truck (1997).

GOFD offers a class two response to emergency medical calls in Green Oak Township. In 1998, GOFD responded to a total of 598 calls. Of these, 48.83 percent were rescue calls that usually concur with an ambulance response. Another 13.55 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 7.53 and 30.10 percent, respectively. In all, the GOFD accounted for approximately 14 percent of fire department runs in Livingston County.

There are 30 active fire fighters on the GOFD roster. The fire chief and secretary positions are currently the only full-time employee in the department. Fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$81,596, or 19.15 percent of expenditures.

In July 2001, the GOFD hired a full-time fire inspector. This inspector is available to respond for the fire department. By the summer of 2002, the department hopes to have the equivalent of 3 full-time fire fighter positions to staff a day shift during the workweek. These positions will be filled through a rotation among active fire fighters. The GOFD also foresees the need for a paramedic unit to eventually be stationed in the township if the growth rate continues at its present pace.

vi. Hamburg Fire Department

The Hamburg Township Fire Department (HMFD) is located in the southeastern corner of Livingston County. The HMFD provides fire protection to Hamburg Township.

Hamburg Township residents primarily support the HMFD through millage. A 1.0 mill. levy on property was passed in 1999 to support capital improvements and fire department operations. In FY 2000, this millage raised \$564,170. From 1946 to 2001, the

HMFD was a private fire corporation and contracted with the township to provide fire service. As of July 1 2001, Hamburg Township assumed control of all fire department assets and operates the fire department as a township department.

The sum of all fire department expenditures in FY 2000 was \$362,913. Of this amount, personnel pay and benefits accounted for \$48,859, or 13.46 percent. Capital improvement expenditures accounted for \$154,717, or 42.63 percent and operating costs of \$159,337, or 43.90 percent.

The HMFD maintains three stations in Hamburg Township. The current HMFD main station is located in Hamburg village on Hamburg Rd. Upon the completion of a major renovation of the west station, the two small stations in Hamburg village will become sub-stations. HMFD west station, station number 10, is located on M-36 at the intersection with Pettysville Rd. When the renovation of the west station is complete, it will house one engine, one brush rig, one squad car, one super tanker, and one back-up engine. The two small stations will house one engine, one heavy rescue truck, one tanker, one brush rig, and one squad car.

HMFD currently offers a class one response to emergency medical calls in Hamburg Township. In 1998, HMFD responded to a total of 676 calls. Of these, 63.91 percent were rescue calls that usually concur with an ambulance response. Another 5.47 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 6.07 and 24.56 percent, respectively. In all, the HTFD accounted for approximately 16 percent of fire department runs in Livingston County.

There are 50 active fire fighters on the HMFD roster. There are currently no full-time employees in the department. Fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$44,683.

The change from a private fire corporation to a township owned department is a major one for the HMFD. One of the more likely changes in the near future is to change from response priority class one to class two. A strong incentive to change is the high number of runs that result from a class one response. In 2002, the HMFD plans to staff each station with the equivalent of a full-time fire fighter position. This arrangement should reduce response times. Within ten years, the department expects to begin the transition to a full time department.

vii. Hartland Township Fire Department

The Hartland Fire Department (HTFD) is located on eastern border of Livingston County. The HTFD provides fire protection to Hartland Township, sections 31-34 in Tyrone Township, and Deerfield Township sections 24-26, 35, 36 and a portion of section 23. U.S. Highway 23 runs 12.38 miles north to south through Hartland Township.

Hartland Township residents support the HTFD through a tax levy of 1.32 mill. This millage funds the department's operations and capital investments. In FY 2000, this millage raised a total of \$431,116. The HTFD also received \$7,500 each in reimbursed fire runs from Tyrone and Deerfield Townships and \$18,370 from cost recovery efforts in Hartland Township, for a total of \$33,370. Tyrone and Deerfield Townships each pay a non-refundable annual deposit of \$7,500 for fire protection. The HTFD deducts the cost of each fire run from this fee until the deposit is exhausted, then bills the township on a per-run basis. Tyrone recovered \$4,575 from HTFD fire runs in the township, while Deerfield recovered a total of \$2,275 from all fire runs in the township by the Hartland, Howell, and Argentine Fire Departments.

Including special revenue fund expenditures, the sum of all fire department expenditures in FY 2000 was \$350,685. Of this amount, personnel pay and benefits accounted for \$132,084, or 37.66 percent. Capital improvement expenditures accounted for \$120,295, or 34.30 percent, followed by operating costs of \$98,306, or 28.03 percent.

The HTFD maintains two fire stations in Hartland Township. The current HTFD main station, number 61, was built in 1976 and is located on Hartland Rd. south of Hartland village. This station is equipped with one engine, one tanker, one heavy rescue, one dive truck, and one squad truck. Sub-station number 62 was built in 1998 and is located on Old U.S. 23 at the northern border of Hartland Township. This station is equipped with one engine, one squad truck, and one rescue truck. Livingston County EMS and HTFD share occupancy of sub-station number 62 and built the station cooperatively. The main station is scheduled for a major renovation in the winter of 2001-02.

HTFD offers a class two response to emergency medical calls in its service area. In 1998, HTFD responded to a total of 355 calls. Of these, 49.01 percent were rescue calls that usually concur with an ambulance response. Another 12.96 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 10.99 and 27.04 percent, respectively. In all, the HTFD accounted for approximately 8 percent of fire department runs in Livingston County.

There are 30 active fire fighters on the HTFD roster. The department employs two full-time fire fighters five days a week and one part-time secretary/firefighter. Each full-time employee undertakes different responsibilities such as fire inspection, public education, and record keeping. All other fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$117,844, or 33.60 percent of all expenditures.

The HTFD plans to hire an additional full-time fire fighter in FY 2001. By 2006, the department anticipates employing a total of 5 full-time fire fighter positions and one part-time secretarial/firefighter position. One motivating factor behind employing full-time fire fighters is the high number of runs that require only two responders. Another factor is the high number of fire fighters who are unable to respond during working hours. A final consideration is the reduction in insurance rates that township residents receive when the fire department upgrades its service and lowers the township ISO rating.

viii. Howell Fire Department

The Howell Fire Department (HWFD) is located in central Livingston County. The HWFD provides fire protection to six townships in the county, Cohoctah, Deerfield, Howell, Oceola, Marion, and Genoa. HWFD covers all of Oceola and Marion townships; sections 1-5, 10-16, 21-28, and 32-36 in Cohoctah township; sections 18-22, 27-34, and portions of sections 7 and 17 in Deerfield township; all of Howell township except sections 6, 7, 18, 19, and portions of sections 29 and 30. The HWFD also contracts with the Brighton Area Fire Authority to cover sections 3-10, 15-21, 30, and portions of sections 11 and 29 in Genoa township. Approximately 9.4 miles of Interstate 96 runs diagonally through the area covered by the HWFD. A large section of M-59 and Grand River Rd. also run through the HWFD district.

Historically, the City of Howell has administered the HWFD budget and supported its operations through the general fund. In FY 2000, the City of Howell expended \$832,345 for HWFD operating costs, \$175,177 in direct capital outlays, and \$105,520 in transfers to HWFD capital reserves. Townships reimburse the City of Howell for fire service by splitting 49 percent of the annual budget among themselves according to their share of the average proportion of fire department runs over a five-year period. In FY 2000, the townships reimbursed the City of Howell a total of \$430,026. The City of Howell covers the remaining 51 percent of the HWFD budget.

Including capital outlays and reserves fund contributions, the sum of all fire department expenditures in FY 2000 was \$1,131,891. Of this amount, personnel pay and benefits accounted for \$516,969, or 45.67 percent. Operating costs accounted for \$319,569, or 28.23 percent of expenditures, followed by capital improvements of \$295,353, or 26.09 percent.

The HWFD originated in 1874 as the Champion Fire Company and in 1950 became the Howell Fire Department. Currently, the HWFD maintains five fire stations. Station number 2, the main station, was built in 1976 and is located on Grand River Rd. west of the City of Howell. This station is equipped with one engine (1998), one tanker (1979), one heavy rescue (1992), one dive truck (1995), one utility truck (2000), and a 102-foot platform truck (1989). Sub-station number 22 was built in 1994 and is located near the intersection of Latson Rd. and M-59 in Oceola township. This station is equipped with one engine (1994) and one grass rig (1993). Sub-station number 21 was built in 1992 and is located near the intersection of Marion St. and Michigan in the City of Howell. This station is equipped with one engine (1994) and one hazardous materials unit. Sub-station number 23 was built in 1995 and is located near the intersection of W. Coon Lake Rd. and County Farm Rd. in Marion township. This station is equipped with one engine (1989) and one grass rig (1995). Sub-station number 24 was built in 1998 and is located near the intersection of Oak Grove Rd. and Chase Lake Rd. in Cohoctah township. This station is equipped with one engine (1987) and one grass rig (1997). By 2003, the Brighton Area Fire Authority and the HWFD will build a jointly owned and operated sub-station in Genoa Township.

HWFD offers a class three response to emergency medical calls in its service area. In 1998, HWFD responded to a total of 862 calls. Of these, 35.27 percent were rescue calls that usually concur with an ambulance response. Another 19.03 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 20.07 and 25.64 percent, respectively. In all, the HWFD accounted for approximately 20 percent of fire department runs in Livingston County.

There are 75 active fire fighters on the HWFD roster. The department employs a full-time chief, one fire marshal/fire inspector, and one secretary/dispatcher. Fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$275,535.

The HWFD is in the process of transferring its budget from the City of Howell to an autonomous fire authority. Under the current scheme, the City of Howell provides 51.00 percent of HWFD revenue, yet receives only 27.87 percent of all HWFD responses. As the rate of population in the townships continues to outpace the rate of growth in the City of Howell, this disparity will only continue to grow. By moving to a fire authority, the HWFD seeks to have townships bear the full proportional cost of fire protection. Final details of the proposal are not complete, but there is a strong likelihood that the authority will gain approval to start in FY 2002. If the proposal passes, then townships will see increases in their fire protection budgets of between 38.41 and 65.32 percent. On the positive side, the townships will own a share of the HWFD assets and will have increased say in the siting of future sub-stations. Table 13 details the shift in who bears the cost of maintaining fire service.

Table 13: Proposed Change to Howell Fire Department Cost Distribution

HWFD Proposed 2002 Budget	Without Authority		With Authority		Change
	\$ Share	% Share	\$ Share	% Share	%
Cohoctah	26,511	2.53	43,829	4.18	65.32
Deerfield	14,232	1.36	23,026	2.20	61.79
Genoa	160,572	15.31	227,091	21.66	41.43
Howell	117,136	11.17	168,868	16.11	44.16
Marion	97,290	9.28	137,442	13.11	41.27
Oceola	98,040	9.35	135,701	12.94	38.41
Howell City	548,752	51.00	326,576	29.81	(40.49)
Total	1,062,533	100.00	1,062,533	100.00	

Source: Howell Fire Department

ix. Putnam Township Fire Department

The Putnam Township Department (PTFD) is located on southern border of Livingston County. The PTFD provides fire protection to Putnam Township, sections 1 and 2 in Dexter Township, and a small portion of section 6 in Webster Township.

Putnam Township residents support the PTFD through a tax levy of 1.25 mill. This millage funds the department's operations and capital investments. In FY 2000, this millage raised a total of \$221,948. The PTFD hopes to extend this millage for another 5 years in July 2001. A vote is also planned in July 2001 to add 0.5 mill. in revenue for a capital improvement fund. Based on the township's 1999 TV, this millage should raise between \$95,000 and \$100,000 each year. The PTFD also recovers costs from fires, hazardous material cleanup, and ordinance violations. In FY 2000 the township recovered \$19,783 in reimbursed fire runs. This sum includes revenue from fire runs into Dexter and Webster townships.

Including capital outlay, the sum of all fire department expenditures in FY 2000 was \$208,446. Of this amount, personnel pay and benefits accounted for \$92,301, or 44.28 percent. Operating costs accounted for \$61,028, or 29.28 percent, and capital improvement expenditures for \$55,117, or 26.44 percent.

The PTFD maintains one fire station in Putnam Township. The current PTFD main station was built in 1973 and is located at the intersection of M-36 and Pinckney Rd. in Pinckney village. This station is equipped with one pumper (1998), one tanker (1985), one heavy rescue (1990, purchased in 2000), one light rescue (1985), one small pumper (1979), and two grass rigs (1979, 1985).

PTFD offers a class two response to emergency medical calls in its service area. In 1998, PTFD responded to a total of 280 calls. In 2000, the PTFD responded to 376 calls. Over these three years, 57.20 percent were rescue calls that usually concur with an ambulance response. Another 11.20 percent represent a variety of fire runs, including structures and vehicles. In all, the PTFD accounted for approximately 7 percent of fire department runs in Livingston County.

There are 34 active fire fighters on the PTFD roster. The department does not have full-time employees. All fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$92,301, 44.28 percent of total operating costs. The PTFD is starting to experience difficulty staffing fire runs that occur during the day, a problem that may warrant the establishment of at least one full-time fire fighter position in the near future.

If the upcoming capital improvement fund millage is successful, the department anticipates that it will have assets sufficient to allow construction of a new fire station by 2008. The department also plans to purchase water/ice rescue equipment in 2001 if the July millage passes.

x. Unadilla Fire Department

The Unadilla Department (UTFD) is located in southwestern corner of Livingston County. The UTFD provides fire protection to Unadilla Township.

Unadilla Township residents support the UTFD through a combination of township general fund expenditures and capital improvement millage. Township residents currently pay 0.75 mill. to pay off the construction bond for the main fire station. In FY 2000, this millage raised \$47,969. The UTFD hopes to extend this millage for another 5 years in July 2001. In 1999, voters approved 1.0 mill for five years to create fund to purchase two new fire trucks. This millage raises approximately \$64,000 each year. The UTFD also recovers costs from structure fires, non-resident automobile fires, hazardous material cleanup, and ordinance violations. In FY 2000 the township recovered \$3,600 in reimbursed fire runs.

The sum of all fire department operating expenditures in FY 2000 was \$54,790. Of this amount, personnel pay and benefits accounted for \$24,485, or 44.69 percent. Operating costs accounted for \$21,711, or 39.63 percent and capital improvement expenditures of \$8,594, or 15.69 percent.

The UTFD maintains one fire station in Unadilla Township. The current UTFD main station was built in 1992 and is located just south of the intersection of M-36 and M-106 in Gregory. This station is equipped with three engines (1969, 1979, 1995), one tanker (1975), and two grass rigs (1973, 1984). The second of the two grass rigs is on loan through the Department of Natural Resources.

UTFD offers a class two response to emergency medical calls in its service area. The department responded to a total of 88 calls in 1998. Of these, 22.73 percent were rescue calls that usually concur with an ambulance response. Another 27.27 percent represent a variety of fire runs, including structures and vehicles. Non-fire and other runs accounted for 14.77 and 35.23 percent, respectively. In all, the UTFD accounted for approximately 2 percent of fire department runs in Livingston County.

There are 21 active fire fighters on the UTFD roster. The department does not have full-time employees. All fire fighters are paid an hourly rate for each call they respond to. In FY 2000, fire fighters received total compensation of \$22,777, or 41.57 percent of expenditures. The department has maintained three open fire fighter positions for the past 3 years. Fire fighter response to daytime calls has been low in recent years, with only 5 or 6 fire fighters available to respond to calls.

VII. Cross-Department Comparisons

The total cost of all fire protection in Livingston County in 2000 was \$3.927 million. This total excludes Argentine and Fenton Fire Departments, since expenditures by Deerfield and Tyrone Townships cover the cost of their Livingston County service. Local government budgets do not necessarily reflect the full cost of fire protection in a community since many townships and cities transfer money directly into fire department capital equipment funds. In 2000, the sum of all expenditures for fire protection in Livingston County was \$4.809 million. Offsetting these expenditures are revenues from contracts for fire service and from cost recovery efforts. Revenues from these two categories totaled \$0.882 million in 2000.

Table 14: Expenditures and Revenues of Livingston County Fire Departments

	Expenditures				Reimbursement Revenue			Total Cost
	Fire Service	Transfers	Other	Total	Contract	Recovered	Total	
Brighton	307,429	0	37,707	345,136	NA	0	0	345,136
Cohoctah	31,685	0	22,432	54,117	NA	6,685	6,685	47,432
Conway	28,617	0	0	28,617	NA	0	0	28,617
Deerfield	29,403	0	0	29,403	NA	2,275	2,275	27,128
Genoa	277,955	50,000	0	327,955	NA	0	0	327,955
Green Oak	426,200	156,220	0	582,420	NA	10,112	10,112	572,308
Hamburg	382,225	(18,239)	0	363,986	NA	0	0	363,986
Handy	66,363	0	0	66,363	NA	12,926	12,926	53,437
Hartland	350,685	87,879	0	438,564	15,000	18,370	33,370	405,194
Howell	103,021	0	0	103,021	NA	29,816	29,816	73,205
Iosco	23,694	0	300	23,994	NA	0	0	23,994
Marion	82,872	0	0	82,872	NA	2,000	2,000	80,872
Oceola	74,175	0	0	74,175	NA	8,642	8,642	65,533
Putnam	166,466	0	42,000	208,466	NA	19,783	19,783	188,683
Tyrone	121,598	0	0	121,598	NA	28,745	28,745	92,853
Unadilla	54,790	0	111,935	166,725	NA	3,600	3,600	163,125
Fowlerville	142,358	11,530	35,562	189,450	148,943	0	148,943	40,507
Howell City	832,345	105,520	175,177	1,113,042	430,026	0	430,026	683,016
Brighton City	483,792	(17,629)	23,787	489,950	138,000	7,875	145,875	344,075
<i>Argentine</i>	<i>126,967</i>	<i>103,133</i>	<i>36,959</i>	<i>267,059</i>	<i>6,950</i>	<i>0</i>	<i>6,950</i>	<i>260,109</i>
<i>Fenton</i>	<i>471,999</i>	<i>70,045</i>	<i>28,624</i>	<i>570,668</i>	<i>114,098</i>	<i>0</i>	<i>114,098</i>	<i>456,570</i>
Total*	3,985,673	375,281	448,900	4,809,854	731,969	150,829	882,798	3,927,056

* Excludes Argentine and Fenton Fire Departments.

Although Howell City, Green Oak, and Hartland spend the most on fire protection in absolute terms, this finding changes slightly when one considers the per capita cost of fire protection. Not surprisingly, townships that contract for fire protection pay the least for that protection. These townships are lightly populated and thus cannot afford to maintain their own fire department. For example, the average resident in Deerfield Township paid only \$6.64 for fire protection in 2000. Unadilla Township is an exception to this rule. Although it is lightly populated, Unadilla residents paid an average of \$51.14 each for fire protection in 2000, the third highest amount per capita in Livingston County. Unadilla township's location in Livingston County gives residents few options on fire protection –the choice is between paying for local service and receiving no service at all.

The cities of Brighton and Howell have the highest per capita costs at \$51.35 and \$73.98, respectively. These costs reflect the cost of fire equipment, such as platform trucks, that urban areas require. In Howell's case, \$73.98 also reflects a subsidy to the rural townships that make up the Howell FD. The formation of the Howell Fire Authority should bring Howell City's per capita cost into line with Brighton City.

Table 15: Cost of Fire Protection by Government Unit

	2000 TV	Population	Cost of FD	\$ / Person	Millage
Brighton	670,891,086	17,673	345,136	19.53	0.51
Cohoctah	75,103,794	3,394	47,432	13.98	0.63
Conway	65,743,200	2,732	28,617	10.47	0.44
Deerfield	101,171,602	4,087	27,128	6.64	0.27
Genoa	631,187,472	15,901	327,955	20.62	0.52
Green Oak	583,406,134	15,618	572,308	36.64	0.98
Hamburg	629,748,500	20,627	363,986	17.65	0.58
Handy	140,725,690	7,004	93,944	13.41	0.67
Hartland	369,704,611	10,996	405,194	36.85	1.10
Howell	209,046,130	5,679	73,205	12.89	0.35
Iosco	71,653,164	3,039	23,994	7.90	0.33
Marion	202,322,554	6,757	80,872	11.97	0.40
Oceola	229,710,434	8,362	65,533	7.84	0.29
Putnam	201,895,660	7,500	188,683	25.16	0.93
Tyrone	277,937,110	8,459	92,853	10.98	0.33
Unadilla	68,628,143	3,190	163,125	51.14	2.38
Howell City	258,873,858	9,232	683,016	73.98	2.64
Brighton City	262,616,800	6,701	344,075	51.35	1.31
Total	5,050,365,942	156,951	3,927,056	25.02	0.78

*Fowlerville and Pinckney are included in results for Handy and Putnam, respectively

The millage column in Table 15 demonstrates the millage equivalent cost of fire protection in 2000. Several fire departments actually receive a higher millage rate than the one indicated, the difference attributable to millage dedicated to equipment and building reserve funds.

Table 16: Fire Department Budget Shares*

Fire Department	Brighton		Fenton		Fowlerville	
	\$	% Total	\$	% Total	\$	% Total
Capital Improvement	71,992	8.44	39,851	7.96	37,793	27.10
Operations	211,002	24.74	123,174	24.60	43,059	30.88
Pay and Benefits	569,721	66.81	337,598	67.44	58,598	42.02
Total	852,715	100.00	500,623	100.00	139,450	100.00
Fire Department	Green Oak		Hamburg		Hartland	
	\$	% Total	\$	% Total	\$	% Total
Capital Improvement	109,454	25.68	154,717	42.63	120,295	34.30
Operations	131,354	30.82	159,337	43.90	98,306	28.03
Pay and Benefits	185,392	43.50	48,859	13.46	132,084	37.66
Total	426,200	100.00	362,913	100.00	350,685	100.00
Fire Department	Howell		Putnam		Unadilla	
	\$	% Total	\$	% Total	\$	% Total
Capital Improvement	295,353	26.09	55,117	26.44	120,529	72.29
Operations	319,569	28.23	61,028	29.28	21,711	13.02
Pay and Benefits	516,969	45.67	92,301	44.28	24,485	14.69
Total	1,131,891	100.00	208,446	100.00	166,725	100.00

* Budget data from Argentine FD does not provide enough detail to include in this table.

Fire department expenditures may fluctuate dramatically from year to year, particularly for smaller departments that infrequently purchase new equipment and do not regularly contribute to equipment reserve funds. Overall, employee pay and benefits represent an average of 47 percent of fire department expenditures. Capital improvement accounts for an average of 24 percent of expenditures, while operations account for an average of 28 percent of expenditures.

Most fire departments maintain a capital equipment, building reserve, depreciation, or similar type of fund. Table 17 details fund balances as reported by fire departments in annual township, city, or village audits. Fire departments in Livingston County maintained fund balances of \$3.018 million in 2000. The approximate value of fire department fixed assets in 2000 was \$10.754 million, consisting of at least \$4.366 million in buildings and \$4.696 million in equipment.

Table 17: Fire Department Fund Balances and Asset Values

	Fund Balances			Value of Fixed Assets		
	2000 BOY	2000 EOY	% Change	Buildings	Equip.	Total
Brighton	NA	NA	NA	1,875,899	812,814	2,688,713
Cohoctah	NA	NA	NA	193,769	0	193,769
Genoa	0	52,083	NA	NA	NA	NA
Green Oak	876,889	1,082,880	23.49	Unkn	Unkn	1,692,147
Hamburg	374,098	558,787	49.37	Unkn	Unkn	Unkn
Hartland	730,119	793,577	8.69	457,934	1,117,264	1,575,198
Marion	NA	NA	NA	125,000	0	125,000
Putnam	4,016	19,548	386.75	909,104	235,657	1,144,761
Unadilla	NA	NA	NA	352,803	376,868	729,671
Fowlerville	99,557	155,103	55.79	Unkn	Unkn	Unkn
Howell City	0	356,905	NA	451,506	2,153,903	2,605,409
Brighton City	17,234	0	(100.00)	NA	NA	NA
Argentine	148,557	186,196	25.34	Unkn	Unkn	Unkn
Fenton	261,474	351,731	34.52	36,303	617,810	654,113
Total	2,101,913	3,018,883	43.63	4,366,015	4,696,506	10,754,668

VIII. Insurance

The Insurance Services Office (ISO) evaluates a community's public fire protection and classifies it on a scale of 1 to 10. Class 1 represents the best public protection and Class 10 indicates less than the minimum recognized protection. Classifying a community's ability to suppress fires enables communities to evaluate their public fire protection services and allows insurance companies to set insurance rates commensurate with the level of protection.

Table 18: ISO Rating for Fire Departments Serving Livingston Co.

Fire Department	Argentine	Brighton	Fenton	Fowlerville	Green Oak
Top-Ranked Area	8	5	6	6	7
Bottom-Ranked Area	9	7	9	9	7

Fire Department	Hamburg	Hartland	Howell	Putnam	Unadilla
Top-Ranked Area	8	7	5	6	8
Bottom-Ranked Area	9	9	9	9	9

The ISO rating results from a comprehensive review of all variables that affect fire protection. The capacity of a fire department to deliver water onto a fire is an important factor in the rating system, as well as the type and condition of fire fighting equipment, the training of fire fighters, response times, and general record keeping. Livingston County's automatic mutual aid dispatch for structure fires not only allows individual departments to concentrate more resources at a structure fire in less time, but helps lower the ISO rating for departments with otherwise limited hydrant or tanker capacity.

When a homeowner receives an insurance quote, the ISO rating directly affects the insurance premium. Table 19 displays several insurance quotations for a home with an appraised value of \$150,000. The figures for Unadilla and Genoa assume a home constructed in 1990 with identical coverage conditions. The figures for Hartland are the average of four separate quotes from different insurance companies.

Table 19: Insurance Quotes for a \$150,000 Home by ISO Rating

Fire Insurance	Hartland		Unadilla		Genoa	
	\$ Annual	% Change	\$ Annual	% Change	\$ Annual	% Change
Class 9	672.50		787.00		603.00	
Class 7	499.25		559.00		433.00	
Class 5	462.50					
Savings 9-7	173.25	(25.76)	228.00	(28.97)	170.00	(28.19)
Savings 7-5	36.75	(7.36)				

Source: Hartland Fire Department, Farm Bureau Insurance –Okemos, MI

Fire departments that wish to increase the level of protection they provide should carefully consider the strong financial incentive that lower ISO ratings give taxpayers to approve additional millage for increased fire department budgets. Homeowners realize the greatest benefit in the initial drop from Class 9 to 7. Drops to lower ISO classes generally require significant capital investments in equipment, personnel, and/or fire hydrants and will have a lower return to the taxpayer.

IX. Observations

i. Personnel

To varying degrees, coping with the shortage of fire fighters available for daytime responses presents the greatest challenge to fire departments in Livingston County. On-call fire departments require fire fighters that can quickly report to the fire station and whose employers support their community service. Livingston County residents are increasingly unlikely to fit either of these requirements. Census results from 1990 show that more than 57 percent of Livingston County residents commute outside the county to work, and only 52 percent of county residents live within 30 minutes of their place of work. Furthermore, the majority of jobs in Livingston County do not have the flexibility that on-call departments require. Several fire chiefs summarized the problem by noting that “people who live in \$300,000 homes do not become fire fighters”.

Fire departments in Livingston County mitigate the effects of these demographic and economic changes in several ways. First, fire departments recently instituted an automatic mutual aid system for structure fires. Improved building codes, fire inspections, and public education programs have steadily cut per capita rates of structure fires in Livingston County and across the United States. In Livingston County, an average of only 13.3 percent of all fire department responses are to actual fires. Rescues from motor vehicle and other accidents constitute the majority of fire department responses. Automatic mutual aid allows the concentration of fire fighting resources from several departments when it is most needed.

Second, fire departments, Livingston County EMS, and 911-CD are currently revising their response protocols to better match incidents with the types of services that 911 dispatches. Several fire departments feel that the new protocols will actually increase their call volume, but reduce the frustration of responding to situations where their assistance is not needed. For other departments, greater dispatch accuracy may reduce call volume and save fire fighter effort for when it is needed most.

Finally, several fire departments have created full time multi-purpose positions to decrease their response times and ensure minimum staffing levels. These departments typically employ one or two fire fighters as fire marshals to spend the majority of their time conducting building inspections and on community outreach and education, but make them available to respond to emergency calls. This arrangement works particularly well for fire departments that have daytime staffing problems and cover rapidly growing communities. Fire departments in more rural, slow growth areas have greater difficulty financing this type of arrangement.

The City of Fenton Fire Department (CFFD) is the only department identified in this study that does not face difficulty attracting on-call fire fighters. In fact, the CFFD has a waiting list to get into the department. One important factor is an industrial park in Fenton that contains a large pool of workers who potentially can respond to emergency calls. Another important factor is that the CFFD has a very effective outreach program with a local Boy Scout Explorer post. As with the Brighton Area Fire Department, many of the CFFD's

members were attracted to fire fighting through their association with this group. Fire departments that experience difficulty filling their rosters should consider similar efforts to broaden their appeal in the community.

Hiring full time fire fighters is an obvious long-term solution for solving staffing problems. Most fire chiefs interviewed expressed the opinion that their fire department would require at least a few full time fire fighters within ten years. An important consideration is how to finance the dramatic increase in expenditures that full time employees create. Even with on-call fire fighters, the average fire department in Livingston County already spends more than 47 percent of its budget on fire fighter pay and benefits. One solution is to increase the value of the fire department by expanding the services that the fire department offers. Fire marshal is just one of many different possibilities. A more complex arrangement is for a fire department to offer paramedic response and transport capabilities. This option is discussed in detail in a later section.

ii. Financial Management

Transparency in financial accounting is important in order for taxpayer financed organizations to maintain public support for their mission. Most fire departments in Livingston County are currently seeking or already receive taxpayer voted millage to finance a combination of general operations, capital equipment, and building reserves. The more taxpayers understand how fire departments operate, the more support they will provide. Several fire departments had difficulty providing basic budget and operations information to this study's principal investigator. While this does not impede a determined researcher, some taxpayers may not prove very forgiving. The remainder of this section presents several ideas how to present fire department records to the general public in a concise and informative manner.

Fire departments obviously must properly account for all funds that they receive and expend, but this accounting underestimates the actual value of on-call fire fighters' labor. Appendix F is a copy of a 6-month study conducted by the Howell fire department to measure fire fighters' in-kind donation to their community. Fire departments that need to increase their budget appropriations or win controversial millage votes may want to consider similar public education projects.

Appendix G demonstrates how fire departments can present their operating costs in a simple worksheet. Expenditures are broken into three main categories, operating, capital, and personnel. Using this type of categorization allows fire departments to present taxpayers with summarized, but informative, budget information. Departments may find the combined data from these annual worksheets useful in preparing cross-year comparisons.

Fire departments that do not currently maintain a capital equipment replacement fund should strongly consider establishing one. The following table presents an example of how to construct a straight-line depreciation schedule for some common equipment types. The exact new value and quantity of this equipment will vary from department to department. Departments that currently maintain a capital equipment replacement fund may wish to

compare their annual contributions to the one suggested by their straight-line schedule. In the following example, the salvage value is 25 percent of the replacement cost and represents the value of the equipment at the end of its useful life. The total in the last row of the table is the amount that a fire department would need to contribute each year to fully fund future replacement equipment purchases.

Table 20: Straight-Line Equipment Depreciation Schedule

Equipment Description	Useful Life (Years)	Replacement Cost	Salvage Value	Annual Contribution
Pumper	20	300,000	75,000	11,250
Pumper	15	150,000	37,500	7,500
Tanker / Pumper	20	300,000	75,000	11,250
Aerial	30	500,000	125,000	12,500
Squad	15	160,000	40,000	8,000
Grass Rig	12	30,000	7,500	1,875
Utility	12	30,000	7,500	1,875
Chief Vehicle	4	30,000	7,500	5,625
Ambulance -Type 3	5	120,000	30,000	18,000
Total		1,620,000	405,000	77,875

Many Livingston County fire departments undertake only minimal efforts to recover their response costs. Howell and Tyrone townships make the best effort, recovering 28.94 and 23.64 percent, respectively, of their total expenditures. Cost recovery is a time-consuming and specialized task. Livingston County EMS' cost recovery program requires two full-time employees to collect around \$2 million each year. Fire departments may wish to consider creating a cooperative cost recovery program to increase the amount of money recovered.

iii. Emerging Issues

Under the provisions of the law that allows the Livingston County 911 Dispatch and Emergency Management Center to receive the proceeds of the telephone line surcharge, the center cannot fund fire department, EMS, or police connections to the Automatic Vehicle Locator (AVL), mobile data, or database systems. Thus, if a fire department or Livingston County EMS wishes to make use of the 911-CD system, it must use its own resources. An issue that providers of emergency services in Livingston County face is how to pay for the data connections to the 911-CD. Furthermore, to make full use of the information available, fire departments and EMS must upgrade and coordinate their computer system software. Fire Departments and EMS should consider a coordinated countywide effort to obtain funding for their technology needs.

iv. Structural and Organizational Issues

The county is fortunate to be served by countywide EMS and 911 Central Dispatch systems supported independently of county government budgets. Independence from county budget constraints allows EMS and 911-CD to each upgrade equipment and personnel

according to their own needs. The county is also fortunate that county fire departments and EMS have developed a collaborative working relationship with each other. The jointly operated sub-station in Hartland Township is one example of how fire departments and EMS can work together to their mutual benefit. Emergency medical response and fire protection services exist throughout the United States in many different configurations. A factor that should not be overlooked is that the present arrangement of fire and emergency medical response in Livingston County is the direct outcome of political and economic decisions made at all levels of local government over the past 50 years or more.

One structural issue that appears to warrant additional discussion relates to joint response. When a fire department and EMS respond to an incident, EMS can bill for the medical treatment and transport it provides, while the fire department can bill for fire suppression, rescue, and hazardous material cleanup. Since fire departments are not certified to provide paramedic service or transport injured parties, they cannot recover their costs for assisting at the scene of an accident, even if the fire department contributes a fire fighter to drive the EMS ambulance.

Two options appear worth discussing with respect to this situation. First, the responding fire department may need to include first medical assist as part of their pricing structure when seeking reimbursement from the individual or insurance company. In this light, a fire department response actually provides two sets of services with the run: a) fire suppression; and b) medical assist. Perhaps a two-tiered pricing system could be implemented when seeking reimbursement.

The second option relates to the possibility of larger departments such as Brighton upgrading their medical assistance to include medical or emergency transport. Under this option, Livingston County EMS would contract with the Brighton Area Fire Authority to provide emergency transport service in its district. This option has the potential to expand the spatial location of EMS throughout the county as well as lower the costs for a fire department by permitting the responding department to offset incurred costs through third party billing. Not all fire departments have the capacity or interest to provide emergency medical transport. However, departments that do may wish to initiate discussion as to how to most efficiently and effectively organize EMS response in the county.

Livingston County EMS records when a 911-CD call results in a fire department responding the same scene as an EMS ambulance. In all, a fire department responded with EMS in 28.61 percent of all EMS runs in 2000. Excluding 2,513 transport runs in 2000 brings this figure to 39.06 percent of EMS emergency runs. Comparing the coincidence of calls from the perspective of fire departments shows that EMS was present at 54.16 percent of fire department calls in 2000. Any discussion about changing the relationship between fire departments and EMS need to take this disproportionate burden on fire departments into account.

Table 21: EMS Responses with Fire Department on Scene

EMS/Fire on Scene	1996	1997	1998	1999	2000	1996-2000
						% Change
All Others	82	103	125	168	164	100.00
Brighton Area	414	522	584	668	474	14.49
Fenton City	0	0	2	0	0	NA
Fowlerville	273	270	297	354	245	(10.26)
Green Oak	215	241	241	267	260	20.93
Hamburg	379	405	454	473	566	49.34
Hartland	184	195	205	233	252	36.96
Howell	251	338	439	403	473	88.45
Putnam	161	171	159	185	218	35.40
Unadilla	13	19	33	34	36	176.92
Total	1,972	2,264	2,539	2,785	2,688	36.31

Source : Livingston Co. EMS

Table 22: Fire Department Runs with EMS Present, 1998

	1998	1998	FD Runs
	Total Runs	with EMS	%
Brighton	933	584	62.59
Fowlerville	348	297	85.34
Green Oak	598	241	40.30
Hamburg	676	454	67.16
Hartland	355	205	57.75
Howell	862	439	50.93
Putnam	350	159	45.43
Unadilla	88	33	37.50
Fenton	247	2	0.81
Total	4,457	2414	54.16

Source: Livingston Co. EMS,
Department of State Police Fire Marshall Division

Livingston County then faces several options with respect to cooperative emergency services. The first is to keep existing organizational structures intact. A second is to create a single, county wide fire service. A third option is to merge, either partially or completely, the operations of Livingston County EMS with one of the first two options.

A useful place to start when weighing the positive and negative impacts of various combinations of emergency services is to understand the factors that motivate the different parties to cooperate or not. A major consideration is the level of trust that exists between parties. Livingston County fire departments already collaborate on many issues: the automatic mutual aid system is just one example. Future collaborative efforts could include instituting a single cost recovery system for fire departments and obtaining a technology millage to upgrade fire department, police, and EMS information linkages with 911 Central Dispatch. Experiences from these types of activities can provide fire departments with a foundation on which to expand their relationships with each other and Livingston County EMS.

Organization of a countywide fire department, under one command staff with individual units serving as sub-stations or outposts for the combined service arrangement is one alternative that is perhaps down the road a ways. Obviously, the consolidation of departments is a sensitive political issue within each community. However, given the population growth pressures in the county, particularly at the township level, the issue bears further discussion when looking to the future.

Appendix A: Livingston County EMS Response Classification System

Livingston County Firefighters Mutual Aid Association EMS Response Classification System (Adopted September 11, 1996)

Class One:

The fire department shall be dispatched to all EMS calls. If the caller requests that the fire department not be sent, they shall not be dispatched.

Class Two:

- The fire department shall be dispatched under the following circumstances:
- Heart attack/Cardiac arrest
- Difficulty breathing/Not breathing
- Stroke
- Unconsciousness
- Massive bleeding
- Multiple parties injured
- Massive burns
- If the ambulance is delayed
- If the ambulance, police department on scene or fire department personnel request the fire department. Also if the dispatcher believes, by information received, that the fire department is needed.
- If the fire department is requested by the caller.

Class Three:

The fire department shall not be dispatched to emergency medical calls unless requested by the caller, ambulance, police department on the scene, or fire department personnel.

Appendix B: Top 25 Automobile Crash Intersections in Livingston County

Rank	Intersection		Community	1997-99
				Average
1	Grand River Ave.	Challis Rd.	Brighton	61.0
2	Grand River Ave.	Cross St.	Brighton	30.0
3	Grand River Ave.	Michigan Ave.	Howell	29.3
4	US 23/Whitmore Lk Rd	Grand River Ave.	Brighton Twp.	25.3
5	Grand River Ave.	National Ave.	Howell	24.7
6	Old US 24	Highland Rd (M-59)	Hartland Twp.	21.7
7	Grand River Ave.	Latson Rd.	Genoa Twp.	19.7
8	Chilson Rd.	Brighton Rd.	Genoa Twp.	18.7
9	Grand River Ave.	Main St.	Brighton	18.3
10	Grand River Ave.	Highlander Way	Howell	17.7
11	Grand River Ave.	Hilton Rd.	Brighton Twp.	17.3
12	Highland Rd.	Blaine Rd.	Hartland Twp.	16.3
13	Whitmore Lk Rd.	Lee Rd.	Green Oak Twp.	16.0
13	Grand River Ave.	Walnut St.	Howell	16.0
15	Grand River Ave.	Chilson Rd.	Genoa Twp.	15.7
15	Grand River Ave.	North St.	Brighton	15.7
17	Spencer Rd.	Old US 23	Brighton Twp.	15.3
17	Michigan Ave.	Sibley St.	Howell	15.3
17	M-36	Chilson Rd.	Hamburg Twp.	15.3
20	Highland Rd.	Latson Rd.	Oceola Twp.	14.7
21	Michigan Ave.	Clinton St.	Howell	14.0
22	Grand River Ave.	Church St.	Brighton	13.7
23	Grand River Ave.	Highland Rd.	Howell Twp.	13.3
23	Grand River Ave.	St Paul St.	Brighton	13.3
25	<i>several tied</i>			13.0

Source: Livingston County Department of Planning, Livingston County Road Commission

Appendix C: EMS Runs by Location, 1996-2000

EMS Runs by Location	1996	1997	1998	1999	2000	1996	2000	1996-2000
Township						% Total	% Total	% Change
Brighton	627	592	612	774	814	8.15	8.67	29.82
Cohoctah	88	62	102	117	115	1.14	1.22	30.68
Conway	52	59	64	86	64	0.68	0.68	23.08
Deerfield	84	83	78	85	115	1.09	1.22	36.90
Genoa	500	507	533	688	857	6.50	9.12	71.40
Green Oak	500	527	489	577	603	6.50	6.42	20.60
Hamburg	456	451	524	504	593	5.93	6.31	30.04
Handy	145	140	146	206	165	1.88	1.76	13.79
Hartland	337	326	310	418	481	4.38	5.12	42.73
Howell	250	270	253	321	364	3.25	3.87	45.60
Iosco	53	45	47	58	59	0.69	0.63	11.32
Marion	151	155	143	187	194	1.96	2.07	28.48
Oceola	174	147	228	218	230	2.26	2.45	32.18
Putnam	170	173	164	210	244	2.21	2.60	43.53
Tyrone	186	223	233	210	244	2.42	2.60	31.18
Unadilla	96	100	121	140	120	1.25	1.28	25.00
Village								
Fowlerville	192	190	214	212	244	2.50	2.60	27.08
Pinckney	111	62	80	81	93	1.44	0.99	(16.22)
City								
Howell	607	609	645	634	664	7.89	7.07	9.39
Brighton	515	513	527	567	618	6.69	6.58	20.00
Totals								
Townships	3,869	3,860	4,047	4,799	5,262	50.29	56.01	36.00
Villages	303	252	294	293	337	3.94	3.59	11.22
Cities	1,122	1,122	1,172	1,201	1,282	14.58	13.65	14.26
County Total	5,294	5,234	5,513	6,293	6,881	68.81	73.25	29.98
Transport Destinations								
McPherson Hospital	1,298	1,398	1,267	1,214	1,435	16.87	15.28	10.55
Greenery (I.H.S.)	319	335	322	298	275	4.15	2.93	(13.79)
Medilodge	276	221	209	163	194	3.59	2.07	(29.71)
Ashley Court	0	0	0	0	33	0.00	0.35	NA
McPherson/McAuley	253	301	279	333	287	3.29	3.06	13.44
Independence Village	42	42	57	63	49	0.55	0.52	16.67
Out of County	212	170	198	142	240	2.76	2.55	13.21
Transit Total	2,400	2,467	2,332	2,213	2,513	31.19	26.75	4.71
Total	7,694	7,701	7,845	8,506	9,394	100.00	100.00	22.10

Source: Livingston County EMS

Appendix D: Livingston County EMS Response Times in 2000

Response Time	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30+	NTE*	Total	<10 Min
Township										% Total
Brighton	95	262	109	23	6	1	0	47	543	65.75
Cohoctah	1	3	37	37	5	2	0	3	88	4.55
Conway	0	9	19	13	1	1	1	2	46	19.57
Deerfield	0	11	30	23	8	1	2	2	77	14.29
Genoa	55	275	173	30	2	1	0	27	563	58.61
Green Oak	37	152	108	30	4	2	2	60	395	47.85
Hamburg	42	180	118	44	13	1	3	17	418	53.11
Handy	2	39	55	12	2	0	0	9	119	34.45
Hartland	24	126	116	41	3	0	0	17	327	45.87
Howell	42	127	33	7	0	2	0	20	231	73.16
Iosco	1	1	18	8	3	3	0	4	38	5.26
Marion	8	47	56	17	3	0	0	9	140	39.29
Oceola	15	64	57	11	3	0	0	5	155	50.97
Putnam	11	39	62	44	12	1	0	8	177	28.25
Tyrone	6	32	54	47	12	2	1	16	170	22.35
Unadilla	1	4	17	16	5	3	2	19	67	7.46
Village										
Fowlerville	1	80	56	10	0	1	0	8	156	51.92
Pinckney	6	32	24	7	2	1	0	1	73	52.05
City										
Howell	161	218	25	6	2	1	0	13	426	88.97
Brighton	99	194	51	15	1	0	0	9	369	79.40
Totals										
Townships	340	1,371	1,062	403	82	20	11	265	3,554	48.14
Villages	7	112	80	17	2	2	0	9	229	51.97
Cities	260	412	76	21	3	1	0	22	795	84.53
County Total	607	1,895	1,218	441	87	23	11	296	4,578	54.65
Transport Destinations										
McPherson Hospital	5	13	0	0	0	0	0	0	18	100.00
Greenery (I.H.S.)	34	25	0	2	0	0	0	0	61	96.72
Medilodge	23	36	1	0	0	0	0	0	60	98.33
Ashley Court	1	10	3	0	0	0	0	0	14	78.57
McPherson/McAuley	3	11	4	0	0	0	0	1	19	73.68
Independence Village	16	17	0	0	0	0	0	0	33	100.00
Out of County	1	23	33	18	5	1	1	23	105	22.86
Independence Village II	0	0	0	0	0	0	0	0	0	NA
Other	5	8	22	7	3	1		9	55	23.64
Transit Total	88	143	63	27	8	2	1	33	365	63.29
Total	695	2,038	1,281	468	95	25	12	329	4,943	55.29

* NTE is No Time Entered

(Source: Livingston County EMS)

Appendix E: Brighton Area Fire Authority Fire Service Fee Schedule

Resolution adopted by the Brighton City Council on November 18, 1999

Fire Department Cost Recovery for Car Fires and Accidents

<u>IX.iv.1.1.1.1.1 Equipment / Vehicle Type</u>	<u># of Personnel Included</u>	<u>Total Per Hour Cost</u>
<u>Subsequent Hours</u>		
Medic	2	160.00
Squad	3	170.00
Engine	3	365.00
Ladder	3	475.00
Utility / Special Purpose	1	95.00
Fire Investigation Unit	1	135.00
Staff	1	85.00

If any additional personnel are needed the personnel cost will be assessed at:

<u>Type</u>	<u>Cost Per Hour</u>
Fire Fighter	Pay plan plus 50 %
Inspector	Pay plan plus 50 %
Staff Officer	Pay plan plus 50 %
Secretarial Staff	Pay plan plus 50 %

Residents of Brighton Township, the City of Brighton, and Genoa Township shall be charged at a rate of ten percent (10%) of the full charge as enumerated above.

Any total bill totaling less than \$100.00 shall not be charged.

Appendix F: In-Kind Contributions by Howell Fire Department Fire Fighters

DEDICATION OF THE FIREFIGHTERS

For a period of six (6) months this year the firefighters were requested to report their unpaid time that they give to our community. The following is a synopsis of their dedication.

From April 22, 1998 – October 30, 1998

Inservice Training: Firefighters are paid \$7.00 for a meeting. Please note that they are not paid by the hour. From April 22, 1998 through October 30, 1998 there were a total of twenty-five (25) training meetings that on an average went for 3 hours long each. We averaged 50 firefighters per training meeting. Total in service training hours that the firefighters were not entirely compensated for is 3,750 training hours.

Inservice training	3,750 hours
Misc.	189 hours
Station maintenance	62 hours
Training –Special Teams	703.5 hours
Fire Prevention	500 hours
<u>Apparatus maintenance</u>	<u>25.5 hours</u>
TOTAL	5230 HOURS

MISC.

3 hours	10/31	Inventory & assign radios
2.5 hours	10/9	Training records – Sgt. Schietecatte
2 hours	9/14	Replace lights at Page Field
6 hours	9/14	Assist DPW
3 hours	9/10	Training records
2 hours	7/26	Assist 8 children from accident
2.5 hours		Research fire hydrants in townships
3 hours		Administer Sergeants promotional exam
4 hours		Pre-fire surveys of Lotts Elevator
5 hours	5/20	Dry hydrant inspections
100 hours	5/7	Maps of new subdivisions – Hickman
1.5 hours	5/19	Maintenance lawn mower
7 hours	4/30	Small equipment maintenance
16 hours	10/10	Pierce inspection of truck – Borchardt
32 hours	10/20	Pierce pickup truck – Pless & Borchardt
TOTAL	189 hours	

Appendix F: In-Kind Contributions by Howell Fire Department Fire Fighters

STATION MAINTENANCE:

1 hour	10/15	Painted door moldings – Marion St. Sta.
1 hour	10/21	Main station maintenance
2 hours	9/12	Main station maintenance
2 hours	6/18	Service flag pole lights
2 hours	6/18	Main station maintenance
2 hours	6/18	Main station maintenance
1.5 hours	6/18	Main station maintenance
5 hours	5/22	Main station maintenance
1.5 hours	5/22	Repair flagpole at Oceola Township
2 hours	5/6	Main station maintenance
4 hours	4/22	Station maintenance
40 hours	5/98	Planting flowers and grounds maintenance
TOTAL:	62 hours	

TRAINING

SPECIAL TEAMS TRAINING

6 hours	10/20	Fire investigation training
6 hours	10/9	Fire investigation Oceola Township
80 hours	10/10	Chemistry Training – MSU
40 hours	9/26	Hazmat Team training – 4 FF's
14 hours	9/12	Technical Response training
7 hours	9/15	Arson investigation
10.5 hours	9/13	Dive training
92 hours	9/17	Dive training
15 hours	8/23	Dive training
12 hours	8/18	Technical Rescue training
2 hours	6/29	Dive Team training
48 hours	6/29	Open Water training
39 hours	6/18	Technical Rescue Team training
80 hours	3/98-6/98	MFR Training – Pless
80 hours	3/98-6/98	MFR Training – Coulter
32 hours	6/27	Technical Rescue & Dive training
32 hours	6/27	Technical Rescue & Dive training
8 hours	6/16	Arson Investigation training
3 hours	6/4	Technical Rescue Team
14 hours	5/19	Arson Team training
2 hours	5/19	Arson training

Appendix F: In-Kind Contributions by Howell Fire Department Fire Fighters

50 hours	5/16	Technical Rescue training – Trench
8 hours	5/14	CISD Team training
18 hours	5/11	Dive Team training
6 hours	4/30	Driving School – Milford Proving Grounds
2 hours	4/23	Hazmat training
4 hours	4/30	Driving School – Milford Proving Grounds
3 hours	4/21	Arson investigation training
4 hours	4/30	Driving School - Milford Proving Grounds
3 hours	4/23	Hazmat Team training
3 hours	4/16	Technical Rescue training
12 hours	4/26	Dive Team training
TOTAL	703.5 hours	

FIRE PREVENTION

235 hours	10/11	Open House preparation & cleanup
18 hours	10/10	Public Ed Demo – Art Van – 6 people
9 hours	10/10	Public Ed Demo – Leroy Township
2 hours	9/30	Public Ed – preschoolers
9 hours	9/23	Public Ed – smokehouse – 3 FF's
28 hours	8/22	Public Ed – Melon festival
8 hours	8/14	Public Ed – Melon Run
6 hours	5/25	Public Ed – Memorial Day
3 hours	7/16	Public Ed – HWMS
3 hours	7/12	Public Ed – Rec. Center
28 hours	7/12	Public Ed – Balloon Festival
32 hours	6/28	Public Ed – Balloon Festival
4 hours	7/10	Public Ed – Pathway School
4 hours	7/10	Public Ed – Grace Lutheran
8 hours	6/27	Public Ed – Georgetown Open House
2 hours	6/27	Public Ed – Masons
18 hours	7/4	Public Ed – Cohoctah Parade
2 hours	6/12	Public Ed – Preschoolers
2 hours	6/6	Public Ed – Station tour
9 hours	5/25	Public Ed – Memorial Day Parade
15 hours	5/13	Public Ed – Main station tour
7 hours	4/26	Public Ed – Livingston County Home Show
1.5 hours	10/5	Public Ed – Grace Lutheran
1.5 hours	10/5	Public Ed – Grace Lutheran
1.5 hours	10/6	Public Ed – Grace Lutheran
1.5 hours	10/6	Public Ed – Grace Lutheran
1.5 hours	10/6	Public Ed – Challenger School

Appendix F: In-Kind Contributions by Howell Fire Department Fire Fighters

1.5 hours	10/7	Public Ed – 1 st Presbyterian Church
1.5 hours	10/7	Public Ed – 1 st Presbyterian Church
1.5 hours	10/8	Public Ed – 1 st Presbyterian Church
1.5 hours	10/8	Public Ed – 1 st Presbyterian Church
1.5 hours	10/9	Public Ed – SW School
1.5 hours	10/9	Public Ed – Challenger School
1.5 hours	10/12	Public Ed – SW School
1.5 hours	10/13	Public Ed – SW School
1.5 hours	10/14	Public Ed – St. Joe School
2 hours	10/15	Public Ed – SW School
1.5 hours	10/16	Public Ed – McKinnon Home School
1.5 hours	10/19	Public Ed – LESA Headstart
2 hours	10/20	Public Ed – Hidden Springs School
1.5 hours	10/20	Public Ed – Toddling Tots Preschool
1.5 hours	10/20	Public Ed – Koality Care Day Care
1.5 hours	10/22	Public Ed – SE Kindergarten
1.5 hours	10/28	Public Ed – Voyager School
1.5 hours	10/29	Public Ed – Voyager School
TOTAL:	500 hours	

APPARATUS MAINTENANCE & REPAIR

1 hour	10/10	Repair pump T-20
1 hour	9/22	Repair pump E-23
1 hour	9/18	Repair L-206
3 hours	9/3	Repair E-21
1 hour	9/14	Repair L-206
3 hours	9/14	Equipment inventory R-20
2.5 hours	7/15	Repair signals E-20
2 hours	7/21	Repair G-212
2.5 hours	6/7	Repair G-214
3 hours	6/1	Maintenance Dive Trailer
1.5 hours	5/26	Maintenance T-20
3 hours	4/18	Repair E-205
1 hour	5/5	Repair E-202
TOTAL	25.5 hours	

We at the Howell Fire Department would like to thank and commend our community leaders for their strong support in providing us with the funding and resources which enable our firefighters to provide the community with a professional, well trained level of service.

Appendix G: Sample Operating Cost Worksheet for Public Education

Operating Funds	2000	2001	Capital Replacement Funds	2000	2001
Revenue			Beginning of Year Balance	\$xxx.xx	\$xxx.xx
Taxes	\$xxx.xx	\$xxx.xx	Revenue		
Interest on Investments	\$xxx.xx	\$xxx.xx	Taxes	\$xxx.xx	\$xxx.xx
Public Contributions	\$xxx.xx	\$xxx.xx	Interest on Investments	\$xxx.xx	\$xxx.xx
Contracts	\$xxx.xx	\$xxx.xx	Other	\$xxx.xx	\$xxx.xx
Cost Recovery	\$xxx.xx	\$xxx.xx	Sub-total	\$xxx.xx	\$xxx.xx
Other	\$xxx.xx	\$xxx.xx	Transfers In	\$xxx.xx	\$xxx.xx
Sub-total	\$xxx.xx	\$xxx.xx	Total	\$xxx.xx	\$xxx.xx
Transfers In	\$xxx.xx	\$xxx.xx	Expenditures		
Total	\$xxx.xx	\$xxx.xx	Capital Equipment	\$xxx.xx	\$xxx.xx
Expenditures			Other	\$xxx.xx	\$xxx.xx
Capital Equipment	\$xxx.xx	\$xxx.xx	Sub-total	\$xxx.xx	\$xxx.xx
Operations	\$xxx.xx	\$xxx.xx	Transfers Out	\$xxx.xx	\$xxx.xx
Personnel Pay and Benefits	\$xxx.xx	\$xxx.xx	Total	\$xxx.xx	\$xxx.xx
Sub-total	\$xxx.xx	\$xxx.xx	End of Year Balance	\$xxx.xx	\$xxx.xx
Transfers Out	\$xxx.xx	\$xxx.xx	Fire Fighter In-Kind Contributions	\$xxx.xx	\$xxx.xx
Total	\$xxx.xx	\$xxx.xx			
Value of Fixed Assets	\$xxx.xx	\$xxx.xx			