An Analysis of Emergency Medical Services for the Stratford EMS, Garvin County, Oklahoma

Oklahoma Cooperative Extension Service,
Oklahoma State University

Oklahoma State Department of Health,
Office of Rural Health & EMS Division

April 2000

AE-0009

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RURAL DEVELOPMENT
COOPERATIVE EXTENSION SERVICE
OKLAHOMA STATE UNIVERSITY

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The Stratford community and surrounding area are serviced by the Stratford EMS provider. In order to provide more timely service to the Stratford EMS service area, an analysis of the Stratford EMS provider is being included in this report. This analysis will include a review of the 1998 EMS call reports, as well as alternative funding options and revenue sources.

An Analysis of the Stratford EMS Calls for 1998

The Stratford EMS provider serviced 353 calls in 1998. (**Table 1**). Calls are classified as either emergency or non-emergency in both the response mode "to scene" and the response mode "from scene". In the "to scene" response mode, two hundred thirty-two (232) EMS calls or 66% of the total calls were considered emergency calls and another 117 EMS calls were considered non-emergency. Four EMS call reports did not indicate a response "to scene." However, in the "from scene" response mode, only 33 EMS calls or 9% of the total calls were considered emergency calls, 299 were non-emergency, and another 21 did not indicate the response mode "from scene."

EMS calls are classified by type of call: cancelled calls, transfer calls, DOA calls, refused calls, standby calls, transport calls, and treated - no transport calls (**Table 2**). Fifteen (15) of the EMS calls or 4% of the total calls were cancelled calls. Transfer calls are typically when a patient is transferred from health care facility to another health care facility; sixteen (16) calls or 5% of the total were classified as transfer calls. Another 2 calls were dead on arrival (DOA). Eleven (11) calls or 3% of the total calls refused service from the Stratford EMS provider. Standby calls are usually community service calls that the EMS provides at no cost as a community service; i.e., standby at the Friday night

Table 1
Stratford Ambulance Calls, 1998
EMS Calls by Response/Transport Mode

	Response Mode: To Scene		Response Mode: From Scene	
	Number	Percent	Number	Percent
Emergency Calls	232	66%	33	9%
Non-Emergency Calls	117	33%	299	85%
No Response	4	1%	21	6%
Totals	353	100%	353	100%

Table 2
Stratford Ambulance Calls, 1998
Type of EMS Calls

Type of Call	Number of Calls	Percent of Calls
Cancelled	15	4%
Transfer	16	5%
DOA	2	1%
Refused	11	3%
Standby	13	4%
Transport	285	81%
Treated - No Transport	11	3%
Total	353	100%

high school game or standby at the local rodeo performance. Thirteen (13) calls or 4% of the total were classified as standby calls. Transport calls are any call that moves a patient and can be an emergency or non-emergency situation. Eighty-one percent (81%) of the total EMS calls or 285 calls for Stratford EMS were transport calls, where a patient was moved from one location to another location. Treated-no transport calls represented 11 calls or 3% of the total calls.

Table 3 shows the type of call by month for the 1998 Stratford EMS calls. The month with the most calls was July with 50 calls or 14% of the total calls; the month with the second most calls was June with 41 EMS calls or 12% of the total calls. The month with the least number of calls was May with 19 calls, representing 5% of the total calls.

Table 4 shows the number of calls by day of week and time of day for the total EMS calls for the Stratford EMS. Twenty-seven percent (27%) or 97 calls were received between 8 a.m. and noon. Twenty-five percent (25%) or 87 calls were received between noon and 4 p.m. A total of 52% or 184 calls were received between 8 a.m. and 4 p.m. Seventy-three calls, representing 21% of the total calls, were received between 4 p.m. and 8 p.m. A total of 73% or 257 calls were received between 8 a.m. and 8 p.m. T**able 4** also shows that 16% of the calls were received on both Sundays and Tuesdays, or 58 and 56 calls, respectively. Fifteen percent (15%) or 52 calls were received on Wednesdays. The days of the week with the least number of calls were Thursdays and Fridays with 12% of the total EMS calls each, or 44 and 42 calls, respectively.

Table 5 shows the type of call by the day of the week. The majority of the standby calls were on weekends; seven (7) calls on Fridays and 2 calls on Saturdays, out of 11 total standby calls. Sundays, Tuesdays, and Wednesdays had the most transport calls; 44, 44, and 46 calls,

Table 3
Stratford Ambulance Calls, 1998
EMS Calls by Type of Call and by Month of the Year

Type of Call	Cancelled	Transfer	DOA	Refused	Standby	Transport	Treated - No Transport	Totals	Percent of Total
January	0	0	1	0	0	24	1	26	7%
February	1	0	0	0	0	21	2	24	7%
March	1	0	0	1	0	21	0	23	7%
April	1	1	0	0	0	17	0	19	5%
May	0	2	0	0	1	26	0	29	8%
June	2	7	0	1	0	31	0	41	12%
July	3	2	0	2	4	36	3	50	14%
August	2	2	0	4	1	23	0	32	9%
September	0	0	1	0	1	17	1	20	6%
October	0	0	0	0	3	17	3	23	7%
November	4	1	0	2	3	22	1	33	9%
December	1	1	0	1	0	30	0	33	9%
Totals	15	16	2	11	13	285	11	353	100%
Percent of Total	4%	5%	1%	3%	4%	81%	3%	100%	

Table 4
Stratford Ambulance Calls, 1998
EMS Calls by Day of Week and Time of Day

Time of Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Totals	Percent of Total
No Report	1	0	0	0	0	0	1	2	1%
Midnight - 4 a.m.	4	4	1	4	6	1	2	22	6%
4 a.m. - 8 a.m.	11	1	4	11	3	5	4	39	11%
8 a.m. - Noon	14	21	16	15	11	11	9	97	27%
Noon - 4 p.m.	11	10	17	14	12	11	12	87	25%
4 p.m. - 8 p.m.	13	9	15	4	8	16	8	73	21%
8 p.m. - Midnight	4	5	3	4	4	7	6	33	9%
Totals	58	50	56	52	44	51	42	353	100%
Percent of Total	16%	14%	16%	15%	12%	14%	12%	100%	

Table 5
Stratford Ambulance Calls, 1998
EMS Calls by Day of Week and Type of Call

Type of Call	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Totals	Percent of Total
Cancelled	2	4	1	2	2	4	0	15	4%
Transfer	3	2	3	3	2	1	2	16	5%
DOA	2	0	0	0	0	0	0	2	1%
Refused	2	3	3	1	2	0	0	11	3%
Standby	0	1	3	0	0	7	2	13	4%
Transport	44	40	44	46	37	39	35	285	81%
Treated - No Transport	5	0	2	0	1	0	3	11	3%
Totals	58	50	56	52	44	51	42	353	100%
Percent of Total	16%	14%	16%	15%	12%	14%	12%	100%	

respectively. Sundays had the most treated - no transport calls with 5 calls, out of the 11 total treated - no transport calls. Again, Sundays and Tuesdays had the most EMS calls; 58 calls (16%) and 56 calls (16%), respectively.

The type of calls by the age of patient is included in **Table 6**. The majority of the calls were made to the age 80 and over age group, with 129 calls or 37%. For this age group, the majority of the calls were transport calls and over 50% of the transfer calls (9 out of a total of 16 calls) were made to this age group. The 60-69 age group had the next most calls with 65 calls or 18% of the total. The over 60 age group (three combined age groups) represented 225 calls or 64% of the total calls. Fourteen of the 16 total transfer calls were made to this over 60 age group. The least amount of calls were made to the age 20-29 group, with only 14 calls or 4% of the total calls. Seventeen calls or 5% of the total calls did not indicate the age group of the patient or there was no patient involved in the call.

Table 7 shows the type of call by gender. For 23 calls or 7% of the total calls, the gender was not indicated in the run reports. The majority of the calls, 220 calls or 62% of the total calls, were to female patients. The majority of the calls involving female patients were transport calls. The majority of the transfer calls (12 out of the total of 16 transfer calls) involved female patients. Males were involved in the remaining 31% of the total calls or 110 calls.

The EMS calls for the Stratford EMS service are shown by age groups and gender of patients in **Table 8**. Again, approximately 7% or 23 EMS calls did not indicate gender of patient. Of the 220 female patients or 62% of the total calls, the majority, 96 patients (27%) were in the age 80 and over age group. The next largest age group of females was the age 60-69 group with 45 calls or 13% of the total calls. Approximately 45% of the total calls or 158 EMS calls were made to female patients in the over age 60 age groups (three combined groups). For

Table 6
Stratford Ambulance Calls, 1998
Type of Calls by Age of Patient

Age Group Description	Cancelled	Transfer	DOA	Refused	Standby	Transport	Treated - No Transport	Totals	Percent of Total
Not Available	1	0	0	1	10	5	0	17	5%
Under Age 20	3	0	0	1	3	22	1	30	8%
Age 20 - 29	2	1	0	1	0	10	0	14	4%
Age 30 - 39	1	0	0	2	0	18	1	22	6%
Age 40 - 49	0	0	0	1	0	24	2	27	8%
Age 50 - 59	0	1	0	1	0	15	1	18	5%
Age 60 - 69	4	4	1	4	0	49	3	65	18%
Age 70 - 79	1	1	1	0	0	27	1	31	9%
Age 80 and Over	3	9	0	0	0	115	2	129	37%
Totals	15	16	2	11	13	285	11	353	100%
Percent of Total	4%	5%	1%	3%	4%	81%	3%	100%	

Table 7
Stratford Ambulance Calls, 1998
Type of Call by Gender of Patients

Type of Call	Not Available	Male	Female	Total	Percent of Total
Cancelled	1	8	6	15	4%
Transfer	1	3	12	16	5%
DOA	0	1	1	2	1%
Refused	1	5	5	11	3%
Standby	13	0	0	13	4%
Transport	7	88	190	285	81%
Treated - No Transport	0	5	6	11	3%
Totals	23	110	220	353	100%
Percent of Total	7%	31%	62%	100%	

Table 8

Stratford Ambulance Calls, 1998

EMS Calls by Age Groups and Gender of Patients

	Unavailable		Female		Male		Totals	
Age Group	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Under Age 20	3	0.8%	17	4.8%	10	2.8%	30	8.5%
Age 20 - 29	1	0.3%	9	2.5%	4	1.1%	14	4.0%
Age 30 - 39	0	0.0%	6	1.7%	16	4.5%	22	6.2%
Age 40 - 49	0	0.0%	15	4.2%	12	3.4%	27	7.6%
Age 50 - 59	0	0.0%	11	3.1%	7	2.0%	18	5.1%
Age 60 - 69	1	0.3%	45	12.7%	19	5.4%	65	18.4%
Age 70 - 79	0	0.0%	17	4.8%	14	4.0%	31	8.8%
Age 80 and Over	5	1.4%	96	27.2%	28	7.9%	129	36.5%
Not Available	13	3.7%	4	1.1%	0	0.0%	17	4.8%
Totals	23	6.5%	220	62.3%	110	31.2%	353	100.0%

male patients, the largest age group was also the over 80 age group with 28 calls or 8% of the total and the second largest age group was the age 60-69 age group with 19 calls or 5% of the total. Approximately 17% of the total calls or 61 EMS calls were made to male patients in the over 60 age groups (three combined groups). Over 62% of the total EMS calls were to patients in the over age 60 group with 45% of these patients being female and 17% being male.

Table 9 shows the patient origination locations as indicated on the reports received from the Stratford EMS service. The majority of the EMS calls originated in residences, with 141 calls or 40% of the total calls. The "other locations" are those locations that are NOT hospitals, clinic/dr. office, extended care facility, or residence. Approximately 20% of the total calls or 71 calls originated from these "other locations." Another 49 EMS calls or 14% of the total calls had extended care facilities as their origination points. Forty-four (44) EMS calls or 12% of the total EMS calls did not indicate the origination point. Hospitals were the origination point of 41 calls or 12% of the total calls. Valley View Regional Hospital was the hospital with the most call originations with 40 calls or 11% of the total calls. The least amount of calls, seven (7) calls or 2%, originated at Clinics/Dr. Offices.

Table 10 shows the location of the incidence of the calls. **Table 10** shows residences as the most frequent incidence location with 126 calls or 36% of the total calls. There were 78 "no response" answers, representing 22% of the total calls. Extended care facilities were indicated as the incidence location for 51 calls or 14% of the total calls. Hospitals were shown to be the incidence location of 28 calls or 8% of the total calls. Highways at 55+ mph were also shown to represent the incidence location of 28 calls or 8% of the total calls. The data in **Table 10** does not appear to match up number by number with the data in **Table 9**. However, there are similarities in the totals that validate the data (See Comparison of Table 9 and Table 10).

Table 9
Stratford Ambulance Calls, 1998
Number of Calls by Patient Origination Location

	Number	Percent	Number by Sub-Categories	Percent by Sub-Categories
Hospitals			41	12%
Pauls Valley General Hospital	1	0%		
Valley View Regional Hospital	40	11%		
Clinic/Dr. Office	7	2%	7	2%
Extended Care Facility	49	14%	49	14%
Residence	141	40%	141	40%
Other Locations (Not a Clinic, Ext. Care Facility, or Residence)	71	20%	71	20%
No Response	44	12%	44	12%
Totals	353	100%	353	100%

Table 10
Stratford Ambulance Calls, 1998
Call Incidence Location

Location	Number	Percent
Clinic/Dr.'s Office	6	2%
Education Facility	9	3%
Extended Care Facility	51	14%
Farm/Ranch	3	1%
Highway 55+ mph	28	8%
Hospital	28	8%
No Response	78	22%
Office/Business	4	1%
Other	8	2%
Other Traffic Way	7	2%
Public Area	5	1%
Residence	126	36%
Total	353	100%

Comparison of Table 9 and Table 10

Originating Location or Incidence Location	**Table 9** Response/Percent	**Table 10** Response/Percent	Subtotals
Residence	141 (40%)	126 (36%)	
Hospitals	41 (12%)	28 (8%)	
Extended Care Facility	49 (14%)	51 (14%)	
Clinic/Dr. Office	7 (2%)	6 (2%)	
Other Locations	71 (20%)		
Total "Other" from **Table 10**		64 (17%)	
Education Facility			9 (2%)
Farm/Ranch			3 (1%)
Highway 55+			28 (8%)
Office/Business			4 (1%)
Other			8 (2%)
Other Traffic Way			7 (2%)
Public Area			5 (1%)

Table 11 indicates the EMS calls by patient destination locations for the Stratford EMS service. Hospitals was the patient destination with the most calls, 253 calls or 72% of the total calls. The hospital with the most patient destinations was Valley View Regional Hospital with 185 calls or 52% of the total calls. Fifty-five (55) calls or 16% of the total calls did not indicate a patient destination. Extended care facilities were the patient destination for 37 of the calls or 10% of the total calls.

Table 12 shows the response time to the scene for EMS calls. Thirty percent (30%) or 93 calls had a response time to the scene of 0 - 5 minutes. Another 34% or 120 calls had a response time of 6 - 10 minutes. A total of 64% of the total calls or 213 EMS calls had a response time to the scene of 10 minutes or less. Eleven percent or 39 calls had a response time of 11 - 15 minutes and 7% or 25 calls a response time of 16 - 20 minutes. A total of 83% or 277 calls had a response time of 20 minutes or less. Data was not available for 17 of the calls.

The total time for EMS calls is illustrated in **Table 13**. Nine calls or about 7% of the total calls had a total time of less than 20 minutes. With a total time of 60 minutes or less, there were 65 calls or 22% of the total calls. With a total time of over 60 minutes up to 120 minutes, there were 208 calls, representing 59% of the total calls. Data was not available for 17 of the total calls in 1998.

Median elapsed response times for each point in the calls and a response time and median time per call are indicated in **Table 14**. For Stratford EMS, the median elapsed time for calls received enroute was 8.5 minutes, to scene was 8.1 minutes, at scene was 23.0 minutes, to destination was 37.9 minutes, and return to service was 170.4 minutes. The median elapsed response time was 15.6 minutes and the median time per call was 98.6 minutes for the 1998 Stratford EMS calls.

Table 11
Stratford Ambulance Calls, 1998
Number of Calls by Patient Destination

	Number	Percent	Number by Subcategories	Percent by Subcategories
Hospitals			253	72%
Valley View Regional Hospital	185	52%		
Pauls Valley General Hospital	36	10%		
Carl Albert Indian Hospital	20	6%		
Norman Regional Hospital	2	1%		
Presbyterian Hospital	2	1%		
VA Hospital	2	1%		
Arbuckle Memorial (Sulphur)	2	1%		
Mercy Hospital (OKC)	1	0%		
Ardmore Memorial (Mercy)	1	0%		
Bone & Joint Hospital	1	0%		
Hospital No Longer Exists	1	0%		
Clinic/Dr. Office	1	0%	1	0%
Extended Care Facility	37	10%	37	10%
Residence	7	2%	7	2%
No Response	55	16%	55	16%
Totals	353	100%	353	100%

Table 12
Stratford Ambulance Calls, 1998
Time to Scene for EMS Calls[a]

Elapsed Time	Number of Calls	Percent of Calls
0 - 5 Minutes	93	30.4%
6 - 10 Minutes	120	34.4%
11 - 15 Minutes	39	11.2%
16 - 20 Minutes	25	7.2%
21 - 25 Minutes	11	3.2%
26 - 30 Minutes	2	0.6%
31 - 35 Minutes	11	3.2%
36 - 40 Minutes	12	3.4%
41 - 45 Minutes	3	0.9%
46 - 50 Minutes	5	1.4%
51 - 55 Minutes	1	0.3%
56 - 60 Minutes	2	0.6%
> 1 Hour	12	3.4%
Total	336	100.0%

[a] Data was invalid on 17 calls; therefore, these 17 calls are not included in this table.

Table 13
Stratford Ambulance Calls, 1998
Total Time for EMS Calls[b]

Time	Number of Calls	Percent of Calls
< 20 Minutes	9	6.8%
21 - 40 Minutes	23	6.6%
41 – 60 Minutes	33	9.4%
61 – 80 Minutes	59	16.8%
81 – 100 Minutes	100	28.5%
101 – 120 Minutes	49	14.0%
> 2 Hours	63	17.9%
Total	336	100.0%

[b] Data was invalid on 17 calls; therefore, these 17 calls are not included in this table.

Table 14
Stratford Ambulance Calls
Median Response Times

Response	Median Elapsed Times
Received Enroute	8.5 Minutes
To Scene	8.1 Minutes
At Scene	23.0 Minutes
To Destination	37.9 Minutes
Return to Service	170.4 Minutes
Time to Scene (Response Time)	15.6 Minutes
Median Time Per Call	98.6 Minutes

The average one-way miles by month for all EMS calls are illustrated in **Table 15**. May is the month with the largest average one-way miles of 25.5 average one-way miles. December is the next largest average one-way miles of 24.6 average one-way miles. October is the month with the lowest average one-way miles of 15.1 average one-way miles. The average one-way miles for the entire year was 19.3 average one-way miles. The month with the most total one-way miles was June with 828 total one-way miles. The month with the next most total one-way miles was December with 813 total one-way miles. The month with the least total one-way miles was September with 339 total one-way miles. Total one-way miles for the Stratford EMS service for 1998 were 6,826 total one-way miles. It is estimated that one-way miles are equal to 40% of total miles; therefore, a total of 17,000 estimated miles is used in this study to illustrate funding alternatives and to project revenues.

The data presented was an analysis of the 1998 run reports from the Stratford EMS service. At the end of 1999 the service had an increase of 44 calls. Therefore, total EMS calls for this study will be adjusted to 397 total calls.

Table 15
Stratford Ambulance Calls, 1998
Average One-Way Miles by Month for All EMS Calls

Month	Number of Calls	Average One-Way Miles	Total One-Way Miles
January	26	20.6	536
February	24	16.7	400
March	23	20.0	459
April	19	22.5	428
May	29	25.5	739
June	41	20.2	828
July	50	16.0	799
August	32	18.8	601
September	20	16.9	339
October	23	15.1	348
November	33	16.2	536
December	33	24.6	813
Totals	353	19.3	6,826

Estimated Costs of Funding Alternative Delivery Systems

Three alternative Stratford EMS systems will be illustrated. All alternatives are based on basic EMT service provided 24 hours per day, 365 days per year. **Alternative 1** is based on one Type I ambulance vehicle and one Type II ambulance vehicle. **Alternative1** is also based on one paid crew for 40 hours per week and volunteers the remaining hours. **Alternative 2** is based on one Type II ambulance vehicle and one Type III ambulance vehicle with a communications system. **Alternative 2** is based on two paid crews for 80 hours per week and volunteers the remaining hours. **Alternative 3** is based on one Type II vehicle and one Type III vehicle, with the purchase of a building to house the EMS service. **Alternative 3** is based on paid crews for round the clock service. A third column (**Alternative 4)** is left blank for the convenience of the decision-makers to add another budget alternative, if desired. These alternatives are not recommendations but rather an analysis of different methods for funding the Stratford EMS system.

Capital and operating budgets are developed based on information derived from Sloggett et al. (1988) [**1**] and information derived from Kleinholz et al. (1990) [**2**]. Capital and operating costs are based on the average known replacement or operating costs. Annual capital costs are defined as the annual depreciation of the capital equipment (ambulance, radios, equipment, buildings, etc.). These annual capital costs are important since they act as a sinking fund to replace worn capital items and are needed to purchase additional capital items in the future. Annual operating costs are the day-to-day expenses of operating the EMS system (salaries, benefits, fuel, oil, maintenance, supplies, insurance, etc.).

Alternative 1 - Stratford EMS System (Type I Vehicle & Type II Vehicle)

Alternative 1 is based on estimated costs for an EMS system that would provide basic level service 24 hours a day, 365 days per year. Costs are based on research [**1,2**]. **Table 16** shows the estimated capital costs.

The capital equipment items needed are included in the second column of **Table 16**. It is assumed that a building will be rented rather than purchased for **Alternative 1**. Furnishings for the building are estimated to cost $2,000. The ambulance vehicles will include one Type I vehicle at $80,000 and one Type II vehicle at $55,000. Each vehicle will be equipped with basic life support equipment, at a cost of $15,000 per vehicle, for a total of $30,000 for two vehicles. The basic life support equipment necessary to equip an ambulance are listed in **Appendix A**. A vehicle radio will be needed for each of the two vehicles, at an estimated cost of $1,000 each, for a total of $2,000. First responders may be needed to cover an area prior to the arrival of an ambulance. Eight first responder kits are included at a cost of $400 each for a total cost of $3,200. Oxygen sets will be stocked and at a cost of $1,000 each, a total of $4,000 would be spent to stock four sets, allowing two sets per vehicle. Communications are of utmost importance; portable radios/phones will be needed to facilitate communications and it is estimated that 12 portable radios/phones will be needed. At a cost of $600 each, the total cost would be $7,200. The total capital costs for **Alternative 1** are approximately $183,400.

A sinking fund or capital equipment replacement fund is necessary to provide for the long-term needs of an EMS system. For **Alternative 1**, the annual capital costs (or annual replacement costs or depreciation) are shown in **Table 17**. The office furnishings are estimated to depreciate over a five-

Table 16
Stratford EMS Service
Estimated Capital Expenditures

	Alternative 1			Alternative 2			Alternative 3			Alternative 4		
Capital Items	Unit Cost	No.	Total Capital Costs	Unit Cost	No.	Total Capital Costs	Unit Cost	No.	Total Capital Costs	Unit Cost	No.	Total Capital Costs
Building			$0			$0	50,000	1	$50,000			
Office Furnishings	2,000	1	$2,000	2,000	1	$2,000	2000	1	$2,000			
Vehicle - Type I	80,000	1	$80,000			$0			$0			
Vehicle - Type II	55,000	1	$55,000	55,000	1	$55,000	55,000	1	$55,000			
Vehicle - Type III			$0	75,000	1	$75,000	75,000	1	$75,000			
Vehicle Basic Equip,	15,000	2	$30,000	15,000	2	$30,000	15,000	2	$30,000			
Vehicle Radios	1,000	2	$2,000	1,000	2	$2,000	1,000	2	$2,000			
Base Communications			$0	20,000	1	$20,000	20,000	1	$20,000			
First Responder Kits	400	8	$3,200	400	8	$3,200	400	8	$3,200			
Oxygen Sets	1,000	4	$4,000	1,000	4	$4,000	1,000	4	$4,000			
Portable Radios/Phones	600	12	$7,200	600	12	$7,200	600	12	$7,200			
Total Capital Costs			$183,400			$198,400			$248,400			

Table 17
Stratford EMS Service
Estimated Annual Capital Expenses

	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
Capital Items	Yrs.	Annual Capital Costs	Yrs.	Annual Capital Costs	Yrs.	Annual Capital Costs	Yrs.	Annual Capital Costs
Building					25	$6,821		
Office Furnishings	5	$400	5	$400	5	$400		
Vehicle - Type I	7.0	$11,429						
Vehicle - Type II	7.0	$7,857	7.0	$7,857	7.0	$7,857		
Vehicle - Type III			7.0	$10,714	7.0	$10,714		
Vehicle Basic Equip,	7	$4,286	7	$4,286	7	$4,286		
Vehicle Radios	5	$400	5	$400	5	$400		
Base Communications	10	$0	10	$2,000	10	$2,000		
First Responder Kits	5	$640	5	$640	5	$640		
Oxygen Sets	5	$800	5	$800	5	$800		
Portable Radios/Phones	5	$1,440	5	$1,440	5	$1,440		
Total Annual Capital Costs		$27,251		$28,537		$35,358		

year period, for a cost of $400 per year. According to [**1**], ambulance vehicles are depreciated based on 75,000 miles or seven years, whichever comes first. The annual depreciation cost for the ambulance vehicles are based on annual total miles of 17,000, which averages 8,500 miles per vehicle per year (17,000/2 = 8,500). With 8,500 miles per vehicle per year and a maximum recommended mileage per vehicle of 75,000, the vehicle turnover rate is every 7 years (75,000/8,500 = 8.82, rounded to 7.0, maximum of 7 years). This results in an estimated annual replacement cost of $11,429 for the Type I ambulance vehicle and an estimated annual replacement cost of $7,857 for the Type II ambulance vehicle. The basic life support equipment is depreciated over a seven-year period, resulting in an annual replacement cost of $4,286. The vehicle radios, first responder kits, oxygen sets, and portable radios/phones are all depreciated over five years, resulting in annual replacement costs of $400, $640, $800, and $1,440, respectively. The estimated total annual capital costs for **Alternative 1** are $27,251.

Annual operating costs are the day-to-day expenses of operating the EMS system (salaries, benefits, fuel, oil, maintenance, supplies, insurance, etc.). The annual operating costs for **Alternative 1** are shown in **Table 18**. Building expenses include the cost of rent of $400 per month, or $4,800 annually. Utilities include water, sewer, & trash at a monthly cost of $50, heating/cooling at a monthly cost of $300, and building maintenance at an estimated cost of $75 per month; totaling annually $600, $3,600, and $900, respectively. The telephone expense is estimated at $250 per month, for an annual expense of $3,000. Vehicle expenses include gas at $1.75/gallon. The total mileage was estimated at 17,000 miles. Based on 8 mpg for all vehicles, the total gallons is estimated to be 2,125 (17,000/8 = 2,125), for a total of $3,719 annual cost. Gasoline may be obtained at a lower cost from local government officials if local arrangements can be made. The vehicle maintenance, repairs, and

Table 18
Stratford EMS Service
Estimated Annual Operating Expenses

	Alternative 1			Alternative 2			Alternative 3			Alternative 4		
Operating Expense Items	Unit Cost	No.	Annual Operating Costs	Unit Cost	Yrs.	Annual Operating Costs	Unit Cost	Yrs.	Annual Operating Costs	Unit Cost	Yrs.	Annual Operating Costs
Building Expenses												
Rent	$400	12	$4,800	$400	12	$4,800			$0			
Water, Sewer, & Trash	$50	12	$600	$50	12	$600	$50	12	$600			
Heat/Cool	$300	12	$3,600	$300	12	$3,600	$300	12	$3,600			
Maintenance	$75	12	$900	$75	12	$900	$125	12	$1,500			
Building Insurance			$0			$0	$750	1	$750			
Telephone	$250	12	$3,000	$250	12	$3,000	$250	12	$3,000			
Vehicle Expenses												
Gas	$1.75	2,125	$3,719	$1.75	2,125	$3,719	$1.75	2125	$3,719			
Maint/Repairs/Insps.			$2,892			$2,892			$2,892			
Insurance	$2,100	2	$4,200	$2,100	2	$4,200	$2,100	2	$4,200			
Billing Expense	$2.00	397	$794	$2	397	$794	$2	397	$794			
Vehicle Radios	$60	2	$120	$60	2	$120	$60	2	$120			
Portable Radios/Phones	$40	12	$480	$40	12	$480	$40	12	$480			
Base System Maint.			$0	$300	1	$300	$300	1	$300			
Licensing Expense			$370			$370			$370			
Medical Supply Exp.			$2,104			$2,104			$2,104			
Labor Costs			$58,868			$85,470			$140,637			
Office Supplies	$50	12	$600	$50	12	$600	$50	12	$600			
Training Expense	$300	12	$3,600	$300	12	$3,600	$300	12	$3,600			
Wrkrs Cmp/ Ins/Bens		25%	$14,016		25%	$20,350		25%	$33,485			
Miscellaneous	$1,500	1	$1,500	$1,500	1	$1,500	$1,500	1	$1,500			
Total Annual Operating Costs			$106,163			$139,399			$204,251			
Total Annual Capital & Operating Costs			$133,414			$167,936			$239,610			
Cost Per Call			$336.06			$423.01			$603.55			

inspections are estimated to cost $2,892. Maintenance and repair expenses include tires, oil, filters, and lubrications, vehicle licensing, and all other maintenance and repairs on the vehicle. The vehicle insurance is estimated at $2,100 per year per vehicle, for an annual total of $4,200 for the two vehicles. Insurance may be acquired at a lower cost by checking with appropriate insurance carriers or by contacting the Director of the EMS Division, Oklahoma State Department of Health, at (405) 271-4027.

The billing expenses for **Alternative 1** are estimated to be $794 per year. This is based on a billing fee of $2.00 per call for the total of 397 calls at Stratford. Equipment maintenance and repairs are important for effective communications and the vehicle radios are estimated to cost $60 each per year to maintain, for an annual total of $120. The portable radios/phones are estimated to cost $40 each per year to maintain, for an annual total of $480. Licensing expenses are estimated to be $370 per year for the main station. The medical supply expenses are based on a cost of $3.50 per call for all 397 calls and a cost of $20.00 per call for emergency calls of 36, for a combined total of $2,104 yearly.

The labor costs for **Alternative 1** are detailed in **Table 19**. An EMS Director is employed full-time at an annual salary of $18,500 to work 40 hours per week as an EMT-Basic or Intermediate and to oversee the entire Stratford EMS operation. One crew will work five 8-hour shifts. The EMS Director will be a part of this crew and will work as an EMT-Basic 40 hours per week, 8 am – 4 pm Monday thru Friday. Each crew will consist of one EMT-Basic or Intermediate and one EMT-Basic or First Responder. Assuming the average wage currently paid for an EMT-Basic or First Responder is $7.50, the cost for the second crew member will be $15,600 annually. The remaining hours, from 4 pm – 8 am Monday thru Friday and for weekends from 8 am Saturday thru 8 am Monday, volunteers will cover the calls. Each volunteer crew will consist of one EMT-Basic or Intermediate and one EMT-

Table 19
Stratford EMS Service
ALTERNATIVE 1 - Labor Costs
Based on Stratford EMS Service
with Full-Time Employment 8 a.m. - 4 p.m. daily &
Volunteers 4 p.m. - 8 a.m. daily M - F and Weekends from 8 a.m. Sat - 8 a.m. Mon
Providing Basic Service, 24 hours/day, 365 days/year

FTE's	Description	Labor Costs
To cover M - F, from 8 a.m. - 4 p.m.		
1	Full-Time EMS Director (EMT-Intermediate) ($18,500/yr.) (Working EMT)	$18,500
1	EMT Intermediate or Basic or 1 First Responder ($7.50/hr., 40 hrs./wk, 52 wks./yr.)	$15,600
To cover M - F, from 4 p.m. - 8 a.m. and Weekends 8 a.m. Sat - 8 a.m. Mon)		
2	Volunteers (2 Volunteers per call, 1 EMT Basic & 1 First Responder) ($115/call, approximately 191 calls)	$21,965
	TOTAL BASE SALARIES	$56,065
	Overtime Pay	$2,803
	TOTAL BASE SALARIES AND OVERTIME	$58,868
	BENEFITS	$14,016
	TOTAL LABOR COSTS FOR ALTERNATIVE 1	$72,884

Saturday

Basic or First Responder. Each volunteer will be paid $57.50 per call. It is estimated that approximately 191 calls will occur for the hours of 4 – 8 pm Mon thru Friday and for the hours of 8 am thru 8 am Monday. The total cost for two volunteers ($57.50 each) per each call (total of 191 calls) is estimated to be $21,965 ($57.50 x 2 x 191 = $21,965). The total base salaries for **Alternative 1** are $56,065. An additional 5% of base salaries is added to the base to allow for overtime pay, for an annual overtime pay total of $2,803. Benefits in the amount of 25% are added into the base salaries for a total of $14,016. The total labor costs for **Alternative 1** are estimated to be $72,884.

Returning to **Table 18**, the total of base salaries and overtime are included under labor costs and the 25% benefits are included under workers' compensation/insurance/benefits. Office supplies are estimated at $50 per month, for an annual total of $600 for **Alternative 1**. Training expenses are estimated at $300 per person for 12 persons, for an annual total of $3,600. Benefits costs, including workers' compensation and insurances, are based on 25% of base salaries of $56,065, for an annual cost of $14,016 (**Table 19**). A miscellaneous category has been included to cover any other costs; the annual estimated miscellaneous cost is $1,500. The total annual operating costs for **Alternative 1** are estimated to be $106,163. The total annual capital and operating costs for **Alternative 1** are estimated to be $133,414, representing a cost of $336.06 per EMS call for the Stratford EMS service.

Alternative 2 - Stratford EMS – Type II & Type III Vehicles & Base Communications

The second funding alternative (**Alternative 2**) would also provide basic service, 24 hours a day, seven days a week. Only differences between **Alternative 1** and **Alternative 2** will be discussed in the text.

In **Table 16** the estimated capital equipment items for **Alternative 2** are shown. **Alternative**

2 will utilize a Type II ambulance vehicle ($55,000) and a Type III ambulance vehicle ($75,000), for a total vehicle cost of $130,000. The only other difference between the first two alternatives is the addition of a base communication system, at an annual cost of $20,000. The total annual capital costs for **Alternative 2** are estimated to be $198,400 for the Stratford EMS service.

The estimated annual capital costs for **Alternative 2** are shown in **Table 17**. The depreciation on the vehicles is based on the same method as **Alternative 1**. The vehicles will need to be replaced every seven years; the annual replacement cost for the Type II vehicle will be $7,857 annually and for the Type III vehicle $10,714 annually. The base communications system will need to be replaced every ten years, for an annual replacement cost of $2,000. The annual capital costs for **Alternative 2** are estimated to be $28,537 for the Stratford EMS service.

The annual operating costs for **Alternative 2** are illustrated in **Table 18**. Again, only the differences between **Alternative 1** and **Alternative 2** will be discussed in the text. The base communications system will require maintenance of approximately $300 per year. Labor costs and benefits for **Alternative 2** are shown in detail in **Table 20**. The labor costs are the same for the EMS Director and the daytime crew. However, in this alternative, a second crew would be employed to cover the 4 pm – midnight shift, 5 days per week. The crew would again consist of an EMT-Basic or Intermediate and an EMT-Basic or a First Responder. The cost would be based on $7.50 per hour for the two crew members for 40 hours per week, 52 weeks per year, for an annual total of $31,200. Volunteers would be employed to handle the remaining calls from midnight – 8 am Monday thru Friday and weekends 8 am Saturday thru 8 am Monday. The volunteers would be paid approximately $57.50 per call each, for approximately 140 calls, for a total of $16,100 annually. The total base salaries are estimated to be $81,400 for **Alternative 2**. Overtime pay is estimated at 5% of base salaries for a

Table 20
Stratford EMS Service
ALTERNATIVE 2
Based on Stratford EMS Services
with Full-Time EMT's for M - F from 8 a.m. - midnight
and Volunteers for M - F from midnight - 8 a.m. and
Weekends from 8 a.m. Sat - 8 a.am. Mon
Providing Basic Service, 24 hours/day, 365 days/year

FTE's	Description	Labor Costs
	To cover M - F, from 8 a.m. - 4 p.m.	
1	Full-Time EMS Director (EMT-Intermediate) ($18,500/yr.) (Working EMT)	$18,500
1	EMT Intermediate or Basic or 1 First Responder ($7.50/hr., 40 hrs./wk, 52 wks./yr.)	$15,600
	To cover M-F, from 4 p.m. - midnight	
2	1 EMT Intermediate or Basic and 1 First Responder ($7.50/hr., 2 persons, 40 hrs./wk., 52 wks./yr.)	$31,200
	To cover M - F, from midnight - 8 a.m. and Weekends 8 a.m. Sat - 8 a.m. Mon)	
	Volunteers (2 Volunteers per call, 1 EMT Basic,Int. & 1 First Responder) ($115/call, approximately 140 calls)	$16,100
	TOTAL BASE SALARIES	$81,400
	Overtime Pay	$4,070
	TOTAL BASE SALARIES AND OVERTIME	$85,470
	BENEFITS	$20,350
	TOTAL LABOR COSTS FOR ALTERNATIVE 2	$105,820

total of $4,070. The total base salaries and

overtime would be $85,470. Benefits are calculated at 25% of base salaries, for a total of $20,350. The total labor costs for **Alternative 2** are estimated to be $105,820.

Referring back to **Table 18**, the base salaries and overtime ($85,470) are included as labor costs and benefits ($20,350) are included as Workers Compensation/Insurance/Benefits under **Alternative 2**. The total annual operating expenses for **Alternative 2** are estimated to be $139,399. The total annual capital and operating expenses for **Alternative 2** are estimated to be $167,936, representing a cost of $423.01 per call for **Alternative 2**.

Alternative 3 - Stratford EMS – Own Building & Round the Clock Crews

The third funding alternative (**Alternative 3**) would also provide basic service, 24 hours a day, seven days a week. Only differences between **Alternative 2** and **Alternative 3** will be discussed in the text.

In **Table 16** the estimated capital equipment items for **Alternative 3** are shown. **Alternative 3** will assume the purchase of a building to house the ambulance service. It is estimated that a building could be purchased for approximately $50,000. The remaining capital expenditures are the same as **Alternative 2**. The total annual capital costs for **Alternative 3** are estimated to be $248,400 for the Stratford EMS service.

The estimated annual capital costs for **Alternative 3** are shown in **Table 17**. The building is estimated to cost $6,821 based on a 25-year loan at 13%. The remaining annual capital expenses are the same as **Alternative 2**. The annual capital costs for **Alternative 3** are estimated to be $35,358 for the Stratford EMS service.

The annual operating costs for **Alternative 3** are illustrated in **Table 18**. Again, only the

differences between **Alternative 2** and **Alternative 3** will be discussed in the text. There will be no rent since it is assumed that a building will be purchased with **Alternative 3**. The building maintenance is estimated to cost $125 per month for an annual total of $1,500. With the purchase of a building, insurance is a necessity and is estimated to cost $750 per year.

Labor costs and benefits for **Alternative 3** are shown in detail in **Table 21**. The labor costs are the same for the EMS Director and the daytime crew. However, in this alternative, two additional crews would be employed; one crew to cover the 4 pm – midnight shift, 5 days per week, and the second crew to cover the midnight – 8 am shift, 5 days per week. Each crew would again consist of an EMT-Basic or Intermediate and an EMT-Basic or a First Responder. The cost would be based on $7.50 per hour for the two crews for 40 hours per week, 52 weeks per year, for an annual total of $62,400. An additional crew would be employed to cover the weekend hours from 8 am Saturday thru 8 am Monday. This crew would work 48 hours, 52 weekends per year, at an hourly rate of $7.50, for an annual total of $37,440. The total base salaries are estimated to be $133,940 for **Alternative 3**. Overtime pay is estimated at 5% of base salaries for a total of $6,697. The total base salaries and overtime would be $140,637. Benefits are calculated at 25% of base salaries, for a total of $33,485. The total labor costs for **Alternative 3** are estimated to be $174,122.

Referring back to **Table 18**, the base salaries and overtime ($104,637) are included as labor costs and benefits ($33,485) are included as Workers Compensation/Insurance/Benefits under **Alternative 3**. The total annual operating expenses for **Alternative 3** are estimated to be $204,251. The total annual capital and operating expenses for **Alternative 3** are estimated to be $239,610, representing a cost of $603.55 per call for **Alternative 3**.

Table 21
Stratford EMS Service
ALTERNATIVE 3
Based on Stratford EMS Services
with Full-Time Employment
Providing Basic Service, 24 hours/day, 365 days/year

FTE's	Description	Labor Costs
To cover M - F, from 8 a.m. - 4 p.m.		
1	Full-Time EMS Director (EMT-Intermediate) ($18,500/yr.) (Working EMT)	$18,500
1	EMT Intermediate or Basic or First Responder ($7.50/hr., 40 hrs./wk, 52 wks./yr.)	$15,600
To cover M-F, from 4 p.m. - midnight and midnight - 8 a.m.		
2	Teams (1 team for 4 p.m. - midnight and 1 team for midnight - 8 a.m.) (1 Intermediate Basic or Intermediate and 1 First Responder per team) ($7.50/hr., 4 persons, 40 hrs./wk., 52 wks./yr.)	$62,400
To cover Weekends 8 a.m. Sat - 8 a.m. Mon)		
1	Team (1 Intermediate Basic or Intermediate and 1 First Responder) ($7.50/hr., 2 persons, 48 hrs./weekend, 52 wks./yr.)	$37,440
	TOTAL BASE SALARIES	$133,940
	Overtime Pay	$6,697
	TOTAL BASE SALARIES AND OVERTIME	$140,637
	BENEFITS	$33,485
	TOTAL LABOR COSTS FOR ALTERNATIVE 3	$174,122

Alternative 4 - Blank

A blank column is available in **Tables 16, 17, and 18** for the local decision-makers to build their own funding alternative. Also, blank forms are included in **Appendix B** to be utilized for the same purpose.

An Analysis of Alternative Revenue Sources

Decision makers for the Stratford EMS service have several ways to raise revenues. Some of these ways, like community fund-raisers, are commendable but not reliable. More reliable sources are user fees, sales taxes, subscription/membership fees, third party reimbursement, fee collected on local utility bill, and special taxation districts.

User fees are generally charged for EMS services; however, these fees generally do not cover costs and have not kept up with EMS costs and inflation. Thus, they are often supplemented with other forms of revenues. For this study, user fees, millage levies from formation of a special taxation district, mileage fees, sales tax, and fee per utility bill are presented. **Tables 22a, 22b, 22c, 22d,** and **22e** illustrate these revenue methodologies.

Table 22a shows the revenues possible for user fees with alternative collection rates. Base rates for ambulance user fees, starting at $100, and continuing with $125, $150, $200, $250, $300, $350, $400, and ending with $450, are shown. These are shown based on emergency calls and non-emergency calls, so that an EMS service could charge different rates for these two types of calls. Alternative collection rates are shown: 90%, 80%, 70%, 60%, and 50%. For the Stratford EMS service, approximately 56 calls were non-billable; of the remaining calls, 36 were considered emergency calls and 306 were non-emergency calls.

Table 22a
Stratford EMS District
Emergency and Non-Emergency User Fees Per Call

Total Calls	397	Emergency	36
Total Miles	17,000	Non-Emerg	306
Ave. Miles/Call	43	Non-Billable	56
		Total Calls	397

EMERGENCY CALLS

		Estimated User Fee Per Call								
		$100	$125	$150	$200	$250	$300	$350	$400	$450
Emergency Calls	36	$3,573	$4,466	$5,360	$7,146	$8,933	$10,719	$12,506	$14,292	$16,079
90% Collections	90%	$3,216	$4,020	$4,824	$6,431	$8,039	$9,647	$11,255	$12,863	$14,471
80% Collections	80%	2,858	3,573	4,288	5,717	7,146	8,575	10,004	11,434	12,863
70% Collections	70%	2,501	3,126	3,752	5,002	6,253	7,503	8,754	10,004	11,255
60% Collections	60%	2,144	2,680	3,216	4,288	5,360	6,431	7,503	8,575	9,647
50% Collections	50%	1,787	2,233	2,680	3,573	4,466	5,360	6,253	7,146	8,039

NON-EMERGENCY CALLS

		Estimated User Fee Per Call								
		$100	$125	$150	$200	$250	$300	$350	$400	$450
Non-Emerg. Calls	306	$30,569	$38,211	$45,854	$61,138	$76,423	$91,707	$106,992	$122,276	$137,561
90% Collections	90%	$27,512	$34,390	$41,268	$55,024	$68,780	$82,536	$96,292	$110,048	$123,804
80% Collections	80%	$24,455	$30,569	$36,683	$48,910	$61,138	$73,366	$85,593	$97,821	$110,048
70% Collections	70%	$21,398	$26,748	$32,097	$42,797	$53,496	$64,195	$74,894	$85,593	$96,292
60% Collections	60%	$18,341	$22,927	$27,512	$36,683	$45,854	$55,024	$64,195	$73,366	$82,536
50% Collections	50%	$15,285	$19,106	$22,927	$30,569	$38,211	$45,854	$53,496	$61,138	$68,780

Table 22b
Stratford EMS District
Estimated Revenues - Millage Levies

	TOTAL NET VALUATION	THREE MILLS	TWO MILLS	ONE MILL
FY 1999				
Stratford School District	$7,556,099	**$22,668**	$15,112	$7,556

Table 22c
Stratford EMS District
Estimated Revenues - Mileage Fees

		Mileage Fees			
		$3	$4	$5	$6
For One-Way Miles	7,820	$23,460	$31,280	$39,100	$46,920
90% Collections	0.9	21,114	28,152	35,190	42,228
80% Collections	0.8	18,768	25,024	31,280	37,536
70% Collections	0.7	16,422	21,896	27,370	32,844
60% Collections	0.6	14,076	18,768	23,460	28,152
50% Collections	0.5	11,730	15,640	19,550	23,460

Table 22d
Stratford EMS District
Estimated Revenues - Sales Tax

	Sales Subject to Sales Tax	1/4¢ Sales Tax	1/2¢ Sales Tax	3/4¢ Sales Tax	1¢ Sales Tax	1 1/2¢ Sales Tax	2¢ Sales Tax
Stratford (FY 1999)	$6,748,367	$16,871	$33,742	$50,613	$67,484	$101,226	$134,967

Table 22e
Stratford EMS District
Estimated Revenues - Fee per Utility Billing

Fee/Month		$2.50	$3.00	$4.00	$5.00	$6.00	$7.50	$10.00	$12.50	$15.00
Fee/Household		$30	$36	$48	$60	$72	$90	$120	$150	$180
Households										
584										
Total Utility Fees		$17,520	$21,024	$28,032	$35,040	$42,048	$52,560	$70,080	$87,600	$105,120
Collections at	95%	$16,644	$19,973	$26,630	$33,288	$39,946	$49,932	$66,576	$83,220	$99,864
Collections at	90%	$15,768	$18,922	$25,229	$31,536	$37,843	$47,304	$63,072	$78,840	$94,608

Table 22b illustrates the estimated revenues that would be generated from millage levies through the creation of a special taxation district. The total net property valuation for all Stratford school districts for FY 1999 was $7,556,099. Three mills would generate $22,668, two mills $15,112, and one mill $7,556.

Mileage charges (**Table 22c**) are shown for $3 per mile, $4 per mile, $5 per mile and $6 per mile for one-way (loaded) miles. For Stratford, one-way miles are approximately 42% of the total miles, for a total of 7,820 miles (17,000 x 42% = 7,820 miles one-way) for the proposed Stratford EMS service. Calculations are shown on how much revenue could be generated if 50, 60, 70, 80, or 90 percent of the total fees are collected.

Another revenue option is to pass an additional sales tax (**Table 22d**). If a $0.0025 sales tax or $0.0050 were passed in Stratford, the amounts of $16,871 and $33,742 are estimated to be generated, respectively. The table illustrates further that $50,613 would be generated from a 3/4¢ sales tax, $67,484 from a 1¢ sales tax, $101,226 from a 1 ½¢ sales tax, and $134,967 from a 2¢ sales tax.

Table 22e illustrates the revenue from a fee per utility billing. The table shows the revenues resulting from a $2.50 per month fee up to a $15 per month fee. If a $2.50 per month utility fee was initiated, each household would pay a total of $30 per year. With an estimated total of 584 households, the annual resulting revenues are estimated to be $16,644, assuming 95% of the households are currently paying utilities. The table illustrates the annual total revenues based on 95% and 90% utility usage.

To illustrate how to utilize the revenue tables, **Alternative 1** (**Table 18**) needs an estimated $133,414 for total annual capital and operating expenses. One method to fund **Alternative 1** is to charge a mileage fee of $4 (70% collections) to generate $21,896, to charge a non-emergency call fee

of $450 (70% collections) to generate $96,292, and to charge an emergency call fee of $450 (70% collections) to generate $11,255 (**Table 23**). The total of these three fees is $129,443, which leaves a deficit $3,972 (**Table 23, Alternative 1, Funding Option #1**).

Another method to fund **Alternative 1** would be to pass a 1¢ sales tax. **Table 23, Alternative 1, Funding Option #2** shows that $67,484 would be generated from a 1¢ sales tax, $16,422 from a $3 mileage fee (70% collections), $64,195 from a $300 non-emergency call fee (70% collections), and $7,503 from a $300 emergency call fee (70% collections). These four fees total $139,182, which more than covers the total annual capital and operating costs of $133,414 for **Alternative 1** (**Table 23, Alt. 1, Funding Option #2**).

To fund **Alternative 2**, **Table 23, Alt. 2, Funding Option #1** illustrates one methodology to cover the total annual capital and operating expenses of $167,936. Assuming 70% collections, a mileage fee of $5 would generate $27,370, a non-emergency fee of $350 would generate $74,894, an emergency fee of $400 would generate $10,004, and a 3/4¢ sales tax would bring in $50,613. Total revenues equal $162,881, leaving a small deficit of $5,055.

Another method to fund **Alternative 2** would be the creation of a special EMS district and to vote a 3/4¢ sales tax, in addition to charging user fees and a mileage fee, to cover the total annual capital and operating expenses of $167,936. The collection of three mills for the Stratford school districts would generate $22,668. A 3/4¢ sales tax would bring in $50,613. With an assumed 70% collection rate, a mileage rate of $5 would bring in $27,370, a non-emergency user fee of $300 would bring in $64,195, and an emergency fee of $300 would bring in $7,503. This would generate a grand total of $172,349 in revenues. This would cover the entire cost of $167,936, leaving a surplus of $4,412. (**Table 23, Alternative 2, Funding Option #2**).

Table 23
Stratford EMS District
Possible Funding Options for All Alternatives

ALTERNATIVE 1 Funding Option #1		ALTERNATIVE 2 Funding Option #1		ALTERNATIVE 3 Funding Option #1		ALTERNATIVE 4 Funding Option #1	
Costs:		Costs:		Costs:		Costs:	
Total Annual Capital & Operating Expenses	$133,414	Total Annual Capital & Operating Expenses	$167,936	Total Annual Capital & Operating Expenses	$239,610	Total Annual Capital & Operating Expenses	
Revenues:		Revenues:		Revenues:		Revenues:	
Mileage Fee, $4, 70%	$21,896	Mileage Fee, $5, 70%	$27,370	Mileage Fee, $5, 70%	$27,370		
Non-ER Fee, $450, 70%	$96,292	Non-ER Fee, $350, 70%	$74,894	Non-ER Fee, $300, 70%	$64,195		
ER Fee, $450, 70%	$11,255	ER Fee, $400, 70%	$10,004	ER Fee, $300, 70%	$7,503		
		Sales Tax, 3/4¢	$50,613	Utility Bill, $6, 90%	$39,946		
				Sales Tax, 1 1/2¢	$101,226		
Total Revenues	$129,443	Total Revenues	$162,881	Total Revenues	$240,239	Total Revenues	
Difference	-$3,972	Difference	-$5,055	Difference	$630	Difference	

ALTERNATIVE 1 Funding Option #2		ALTERNATIVE 2 Funding Option #2		ALTERNATIVE 3 Funding Option #2		ALTERNATIVE 4 Funding Option #2	
Costs:		Costs:		Costs:		Costs:	
Total Annual Capital & Operating Expenses	$133,414	Total Annual Capital & Operating Expenses	$167,936	Total Annual Capital & Operating Expenses	$239,610	Total Annual Capital & Operating Expenses	
Revenues:		Revenues:		Revenues:		Revenues:	
Mileage Fee, $3, 70%	16,422	Mileage Fee, $5, 70%	$27,370	Mileage Fee, $5, 70%	$27,370		
Non-ER Fee, $300, 70%	$64,195	Non-ER Fee, $300, 70%	$64,195	Non-ER Fee, $250, 70%	$53,496		
ER Fee, $300, 70%	7,503	ER Fee, $300, 70%	$7,503	ER Fee, $250, 70%	$6,253		
Sales Tax, 1%	$67,484	EMS District, 3 mills	$22,668	EMS District, 3 mills	$22,668		
		Sales Tax, 3/4¢	$50,613	Sales Tax, 2¢	$134,967		
Total Revenues	$139,182	Total Revenues	$172,349	Total Revenues	$244,754	Total Revenues	
Difference	$5,767	Difference	$4,412	Difference	$5,144	Difference	

A method to fund **Alternative 3** would be to establish a utility fee of $6 per month and to vote a 1 1/2¢ sales tax, in addition to charging user fees and a mileage fee, to cover the total annual capital and operating expenses of $239,610. A utility fee of $6 per month would total $72 per household per year and would generate $39,946 annually, assuming 90% of the utilities are in use. A 1 1/2¢ sales tax would bring in $101,226. With an assumed 70% collection rate, a mileage rate of $5 would bring in $27,370, a non-emergency user fee of $300 would bring in $64,195, and an emergency fee of $300 would bring in $7,503. This would generate a grand total of $240,239 in revenues. This would cover the entire cost of $239,610, leaving a surplus of $630 (**Table 23, Alternative 3, Funding Option #1**).

Another method to fund **Alternative 3** would be to establish an EMS district and pass a 2¢ sales tax. **Table 23, Alternative 3, Funding Option #2** illustrates the revenues generated: $22,668 would be generated from 3 mills from an EMS district; $134,967 would be generated from a 2¢ sales tax; $27,370 from a $5 mileage fee (70% collections); $53,496 from a $250 non-emergency call fee (70% collections); and $6,253 from a $250 emergency call fee (70% collections). These fees total $244,754, which more than covers the total annual capital and operating costs of $239,610 for **Alternative 3**, showing a surplus of $5,144 (**Table 23, Alt. 3, Funding Option #2**).

The Creation of an EMS District

The State of Oklahoma allows for the formation of a special EMS District for the purpose of raising funds to support EMS. **Table 24** outlines the procedures involved in creating an EMS District and the powers and responsibilities of its Board of Trustees. In brief, the County Commissioners must call for a special election to create the district. The district may encompass

TABLE 24

A SUMMARY OF THE PROCEDURES TO CREATE AN EMS DISTRICT AND THE POWERS AND RESPONSIBILITIES OF ITS BOARD OF TRUSTEES [1]

I. Creation of a District

A. Special election called by the County Commissioners or through them as called for by a petition of greater than 10 percent of the registered voters of the affected area.

II. Affected Area

A. One or more counties or portions of counties (must follow school district lines).
B. Incorporated cities.

III. The Election and Ad Valorem Tax Levy

A. Both capital and operational millage levy must be approved by a majority of the voters.
B. The operational millage levy cannot exceed three mills and the capital millage levy cannot exceed three mills.
C. The operational millage levy continues until voters change it; the capital millage levy is in effect until bonds are completely repaid.

IV. The Board of Trustees

A. Appointed by the County Commissioners.
B. Powers and Responsibilities:
    1. Make necessary rules, procedures, and contracts.
    2. Hire appropriate personnel.
    3. Issue bonds upon approval by a majority of the voters at a special election. Bonds are paid for out of the capital millage levy.
    4. Responsible for the economical expenditure of funds.
    5. Can charge additional fees for services.
    6. Can sue and be sued.

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one or more counties, incorporated cities, a township, school districts, or parts of a school district that lie within the borders of a county. The district may assess up to three mills of ad valorem taxes to support the operation of the EMS system. The total net assessed valuation for the Stratford School Districts for FY 1999 was $7,556,099. For a more up-to-date valuation, decision-makers should contact the Garvin County Assessor's Office. If an EMS District were created, a three mill tax levy (**Table 22b**) for the Stratford school districts would raise $22,668 annually ($7,556,099 x .003), a two mill tax levy, $15,112, and a one mill tax levy, $7,556.

Conclusion

The analysis of the Stratford EMS service presented in this paper is designed to aid local decision makers as they determine the kind of EMS system best suited to the Stratford area. Through this analysis, the Cooperative Extension Service is not advocating any of the alternatives presented. This report is not in the form of a recommendation. If further analysis is desired, contact your County Extension Director. Personnel in the EMS Division of the Oklahoma State Health Department and Office of Highway Safety are also willing to help in any way they can.

References

[**1**] Sloggett, Gordon R., Doeksen, Gerald A., Hays, Marvin, and Larsen, Sam. "A Community Development Guide for Emergency Medical Services: A Systematic Approach to Funding and Administration." EMS Division, State Health Department; Oklahoma Highway Safety Office; Oklahoma Cooperative Extension Service, Oklahoma State University, MP-126, July 1988.

[**2**] Kleinholz, Sharon, Doeksen, Gerald, Henderson, Ed, Bullard, Vernon, et.al. "A Guidebook for Rural Fire Protection Services." Oklahoma Cooperative Extension Service, Oklahoma State University, MP-131, November 1990.