An Analysis of Emergency Medical Services for the Haskell County EMS in Haskell County, Oklahoma

Oklahoma Cooperative Extension Service
Rural Development
Oklahoma State University

EMS Division
Oklahoma State Department of Health

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RURAL DEVELOPMENT
COOPERATIVE EXTENSION SERVICE
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for the Haskell County EMS

Haskell County EMS services all of Haskell County, Oklahoma. The EMS system is currently a 522 EMS District. Presently, the 522 EMS Board contracts with Haskell County Hospital for ambulance services. In order to provide more timely and cost effective service to the Haskell County service area, an analysis of the Haskell County EMS is being included in this report. The objectives of the study will include:

1) two different funding alternatives including total capital expenditures and annual capital and operating expenses,
2) analysis of different revenue options, and
3) finally, funding options showing the bottom line, difference between costs and revenues.

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. This report is provided for informational purposes only.

An Analysis of the Haskell County Hospital EMS Calls

The Haskell County EMS provided summary data for **Tables 1** and **2**. The Haskell County EMS responded to 1,360 EMS calls. Of those EMS calls, 155 were emergency, 1,071 were non-emergency, and 134 were non-billable. The Haskell County EMS estimated an annual total mileage of 22,174 miles. Transported miles were determined by estimating distance from call origination to call destination. Transport miles ("loaded" miles) are estimated to be 19,100 miles, which is approximately 86.1% of the total annual mileage.

Table 1

Haskell County EMS Service

Current EMS Providers by Level of Care,
Type of Service, Response Time, Funding Methods, & Fees

EMS Provider	Level of Care	Type of Service	Response Time
Haskell County	Basic	522 District	15

EMS Provider	Funding Methods	Fees		
		Mileage	ER	Non-ER
Haskell County	Charges/Ad Valorem (3 Mills)	$8.50	$550	$425

Table 2

Haskell County EMS Service

EMS Providers by Total Calls, Total Miles, Average Miles & Billable Miles

EMS Provider	Emergency Calls	Non-Emergency Calls	Non-Billable Calls	Total Calls	Estimated Total Mileage	Estimated Billable 1-Way Miles
Haskell County	155	1,071	134	1,360	22,174	19,100

Estimated Costs of Funding Alternative Delivery Systems

Two alternatives for the Haskell County EMS system will be illustrated. The budgets for all alternatives are based on call data provided by the Haskell County EMS and based on the estimated mileage. Both alternatives are based on providing EMS service 24 hours per day, 365 days per year. **Alternative 1** is based on the EMS continuing to be housed at the Haskell County Hospital and **Alternative 2** is based on the rental of a building. A third column (**Alternative 3)** 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 informational analysis of different methods for funding the Haskell County EMS system.

Capital and operating budgets are developed based on information derived from Sloggett et al. (1988) [**1**] and St. Clair et al. (2003) [**3**] 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 – Haskell County EMS – Housed at Hospital

Alternative 1 is based on estimated costs for an EMS system that would supply the Haskell County EMS a paid staff providing EMS service, 24 hours a day, 365 days per year. Costs are based on research [**1,2,3**].

The capital equipment items needed for a BLS service are included in the first column of **Table 3**. Presently, the Haskell County EMS system is housed at the Haskell County

Table 3
Haskell County EMS Service
Estimated Capital Expenditures

	Alternative 1			Alternative 2			Alternative 3		
Capital Items	Unit Cost	No.	Total Capital Costs	Unit Cost	No.	Total Capital Costs	Unit Cost	No.	Total Capital Costs
Vehicle - Type II	$65,000	2	$130,000	$65,000	2	$130,000			
Vehicle - Type III	$95,000	1	$95,000	$95,000	1	$95,000			
BLS Equipment	$15,000	3	$45,000	$15,000	3	$45,000			
Vehicle Radios	$1,500	3	$4,500	$1,500	3	$4,500			
Oxygen Sets	$1,500	6	$9,000	$1,500	6	$9,000			
Portable Radios/Phones/Pagers	$800	15	$12,000	$800	15	$12,000			
Base Communications	$50,000	1	$50,000	$50,000	1	$50,000			
Total Capital Costs			$215,500			$215,500			

Hospital. The first alternative will not include any costs for a building. The EMS system currently has two Type II and one Type III ambulance vehicles with an estimated replacement cost of $65,000 for each Type II and $95,000 for each Type III. The vehicles are equipped with basic life support equipment, at a cost of $15,000 per ambulance. The BLS equipment necessary to equip an ambulance is listed in **Appendix A**. The EMS service may desire to contract with a neighboring EMS service for backup support in the event all three ambulance vehicles are not available. A vehicle radio will be needed for each ambulance at an estimated cost of $1,500 per radio, for a total of $4,500. Oxygen sets will be stocked at a cost of $1,500 each; a total of $9,000 will be spent to stock two oxygen sets for each ambulance vehicle. Communications between the dispatcher and the EMS staff are of utmost importance; portable radios/phones/pagers will be needed to facilitate these communications. It is estimated that 15 portable radios/phones/pagers will be needed; at a cost of $800 each, the total cost is estimated at $12,000. The EMS service will have a base communication systems costing $50,000. The total capital costs for **Alternative 1** for the Haskell County EMS are approximately $215,500.

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 costs) are shown in **Table 4**. According to Sloggett [**1**], ambulance vehicles are depreciated based on 75,000 miles or seven years, whichever comes first. Annual depreciation cost for the ambulance vehicle is based on annual combined total miles of 22,174 as reported by the Haskell County EMS. Therefore, an estimated 7,391 miles annually will be allocated per ambulance. The vehicles will be depreciated over a seven-year period. This results in an estimated total annual replacement cost of $32,142 for the three ambulance vehicles. The BLS equipment is also depreciated over a seven-year period, resulting in an

Table 4
Haskell County EMS Service
Estimated Annual Capital Expenses

	Alternative 1			Alternative 2			Alternative 3		
Capital Items	Unit Cost	Yrs.	Annual Capital Costs	Unit Cost	Yrs.	Annual Capital Costs	Unit Cost	Yrs.	Annual Capital Costs
Vehicle - Type II		7	$18,571		7	$18,571			
Vehicle - Type III		7	$13,571		7	$13,571			
BLS Equipment		7	$6,429		7	$6,429			
Vehicle Radios		5	$900		5	$900			
Oxygen Sets		5	$1,800		5	$1,800			
Portable Radios/Phones/Pagers		5	$2,400		5	$2,400			
Base Communications		10	$5,000		10	$5,000			
Total Annual Capital Costs			$48,671			$48,671			

annual replacement cost of $6,429 for the three ambulances. The vehicle radios, oxygen sets, and portable radios/phones can be transferred to new ambulances and will be depreciated over five years, resulting in annual replacement costs of $900, $1,800, and $2,400, respectively. The base communications system is depreciated over a 10-year period, resulting in an annual replacement cost of $5,000. The estimated total annual capital costs for **Alternative 1** are $48,671.

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 5**. Currently the Haskell County Hospital is providing the building for the EMS system, it is assumed the hospital will continue to provide this item. The EMS pays about $9,000 in utilities and maintenance expenses. The insurance expense for the building and general liability is approximately $1,800 and $2,400, respectively, per year.

Vehicle expense includes fuel being purchased at a $1.60/gallon. Based on 8 mpg and total mileage for the year was estimated to be 22,174 miles, the total gallons estimated to be needed is 2,772 (22,174 ÷ 8 = 2,772), for an annual cost of $4,435 ($1.60 x 2,772= $4,435). Fuel may be obtained at a lower cost from local government officials if local arrangements can be made. Maintenance, repairs, and inspections for vehicles are estimated to cost $4,291 annually. Maintenance and repair expenses include tires, oil, filters, and lubrications, vehicle licensing, and all other maintenance and repairs on the vehicle. Vehicle insurance is estimated at $2,100 per vehicle, for a total of $6,300 annually. Telephone expenses and maintenance contracts for vehicle radios/pagers cost $300 per month for a yearly cost of $3,600.

Table 5
Haskell County EMS Service
Estimated Annual Operating Expenses

	Alternative 1			Alternative 2			Alternative 3		
Operating Expense Items	Unit Cost	No.	Annual Operating Costs	Unit Cost	No.	Annual Operating Costs	Unit Cost	No.	Annual Operating Costs
Bldg. Rent	Provided by hospital			$250	12	$3,000			
Bldg. Utilities (Gas/Elec/Water/Trash)			$9,000	$300	12	$3,600			
Bldg. Maint/Repairs				$40	12	$480			
Bldg. Insurance	$150	12	$1,800	$150	12	$1,800			
Insurance (gen. liab.)	$200	12	$2,400	$200	12	$2,400			
Vehicle Fuel	$1.60	2,772	$4,435	$1.60	2,772	$4,435			
Vehicle Maint/Repairs			$4,291			$4,291			
Vehicle Insurance	$2,100	3	$6,300	$2,100	3	$6,300			
Telephone/Communications	$300	12	$3,600	$300	12	$3,600			
Licensing Expense			$490			$490			
Medical Supply Exp.			$9,900			$9,900			
Labor Costs			$227,526			$257,416			
Office Supplies	$100	12	$1,200	$100	12	$1,200			
Training Expense	$400	15	$6,000	$400	15	$6,000			
Laundry Services	$300	12	$3,600	$300	12	$3,600			
Janitorial Services	$100	12	$1,200	$100	12	$1,200			
Wrkrs Cmp/Ins/Bens		30%	$68,258		30%	$77,225			
Billing - In-house	$500	12	$6,000	$500	12	$6,000			
Other Administrative Costs	$2,500	12	$30,000						
Medical Director Costs	$2,500	12	$30,000	$2,500	12	$30,000			
Miscellaneous			$5,000			$5,000			
Total Annual Operating Costs			$421,000			$427,937			
Total Annual Capital & Operating Costs			$469,671			$476,608			
Cost Per All Calls (1,360)			$345			$350			

Licensing expenses are estimated to be $490 per year. These include the EMS system and the EMTs licenses. The medical supply expenses are based on a cost of $5 per call for the estimated 469 total calls annually ($5 x 1,360 = $6,800) and a cost of $20 for each emergency calls ($20 x 155= $3,100) for the combined medical supply expense totals $9,900 annually ($6,800 + $3,100 = $9,900).

The labor costs for **Alternative 1** are detailed in **Table 6**. The supervisor is a working supervisor and works 40 hours/week with a salary of $32,500. Two full-time crews will work 16 hour shifts while two crews will be on-call working 8 hour shifts. Each crew will consist of at least one EMT Basic with an average wage rate of $7.10 and one First Responder with an average wage rate of $6. A second crew member will be needed on weekdays to cover the other 8 hours in the 16 hour shift since the supervisor works a 40 hour week as well as on the weekends to cover the 16 hours/day not covered. The cost of the full-time EMT-Basic members of the crew total $68,046 while the First Responder members total $70,080. Each crew member of the on-call crew is paid $25 per 8 hour shift and $25 per call. It is estimated that approximately fifteen percent (204 calls) of the total calls will need to be covered by the on-call crew. Therefore, shift labor is $36,500 and call-in pay is $20,400. The total labor costs for **Alternative 1** for the Haskell County EMS is estimated to be $227,526.

Returning to **Table 6**, the total annual labor expense is $227,526 and is included under labor costs. Benefits of $68,258 are included under workers compensation/insurance/benefits. Office supplies are estimated at $100 per month, for an annual expense of $1,200 for **Alternative 1**. Training expenses are estimated at $400 per person for 15 persons, for an annual training expense of $6,000. Laundry services costs are estimated at $300 per month, for an annual

Table 6
Haskell County EMS System,
ALTERNATIVE 1 - LABOR COSTS
Based on Providing Basic Life Support (BLS) Service, 24 hours/day, 365 days/year,
with Two 2-Person Crews (One EMT Basic and One EMT/First Responder)

Description	Labor Costs
Paid Supervisor	
Working EMS Supervisor (EMT-Basic, 40-hour week, Salary)	$32,500
Two Full-Time Crews, 16 hours/day	
First Crew Member: EMT-Basic (1 person, $7.10/hr., 8 hrs./day, 5 days/wk., 52 wks./yr.)	$14,768
First Crew Member: EMT-Basic (1 person, $7.10/hr., 16 hrs./day, 2 days/wk., 52 wks./yr.)	$11,814
First Crew Member: EMT-Basic (1 person, $7.10/hr., 16 hrs./day, 365 days/yr.)	$41,464
Second Crew Member: First Responder (2 persons, $6/hr., 16 hrs./day, 365 days/yr.)	$70,080
One On-Call Crew, 8 hours/day	
Shift Labor	
2 Crew Members (2 persons, $25/shift, 1 shift/day, 365 days/yr.) (Shift Pay)	$36,500
Call-In Pay	
2 Crew Members ($25/call, 204 calls, 2 persons) (Call Pay)	$20,400
Total Labor	$227,526
BENEFITS (30%)	$68,258
TOTAL LABOR COSTS FOR ALTERNATIVE 1	$295,784

expense of $3,600. Janitorial services are estimated at $100 per month for a total annual expense of $1,200. Billing is done in-house and has an estimated annual cost of $6,000. Other administrative costs are estimated at $30,000 annually. Medical director costs are estimated at $30,000 annually also. A miscellaneous category has been included to cover any other costs; the annual estimated miscellaneous cost is $5,000. The total annual operating costs for **Alternative 1** for the Haskell County EMS is estimated to be $421,000. The Haskell County EMS total annual capital and operating costs for **Alternative 1** is estimated to be $469,671, representing a cost of $345 per EMS call for the Haskell County EMS service.

Alternative 2 – Haskell County EMS – Building Rental

Only the differences between **Alternative 1** and **Alternative 2** will be discussed in the text. The second funding alternative (**Alternative 2**) includes the EMS renting a building.

The capital items for **Alternative 2** are shown in **Table 3** while the estimated annual capital costs for **Alternative 2** are shown in **Table 4**. The estimated annual operating costs for **Alternative 2** are illustrated in **Table 5**. An additional expense for **Alternative 2** is rent at an annual cost of $3,000. Utilities for the building include gas, electric, water, and trash. Utilities expense is estimated at $300 monthly or $3,600 annually. Building maintenance will also be needed at an estimated monthly rate of $40 for a total of $480 annually. Labor costs for **Alternative 2** differ from **Alternative 1** only in the wage rate for full-time crew members and are shown in detail in **Table 7**. Total labor costs are $257,416. Benefits of $77,225 are included under workers compensation/insurance/benefits. Since the EMS is operated outside of the hospital, the supervisor acts as an administrator as well so there are no other administrative costs included in **Alternative 2**. Total annual operating costs for **Alternative 2** are estimated to be

Table 7
Haskell County EMS System,
ALTERNATIVE 2 - LABOR COSTS
Based on Providing Basic Life Support (BLS) Service, 24 hours/day, 365 days/year,
with Two 2-Person Crews (One EMT Basic and One EMT/First Responder)

Description	Labor Costs
Paid Supervisor	
Working EMS Supervisor (EMT-Basic, 40-hour week, Salary)	$32,500
Two Full-Time Crews, 16 hours/day	
First Crew Member: EMT-Basic (1 person, $9/hr., 8 hrs./day, 5 days/wk., 52 wks./yr.)	$18,720
First Crew Member: EMT-Basic (1 person, $9/hr., 16 hrs./day, 2 days/wk., 52 wks./yr.)	$14,976
First Crew Member: EMT-Basic (1 person, $9/hr., 16 hrs./day, 365 days/yr.)	$52,560
Second Crew Member: First Responder (2 persons, $7/hr., 16 hrs./day, 365 days/yr.)	$81,760
One On-Call Crews, 8 hours/day	
Shift Labor	
2 Crew Members (2 persons, $25/shift, 1 shift/day, 365 days/yr.) (Shift Pay)	$36,500
Call-In Pay	
2 Crew Members ($25/call, 204 calls, 2 persons) (Call Pay)	$20,400
Total Labor	$257,416
BENEFITS (30%)	$77,225
TOTAL LABOR COSTS FOR ALTERNATIVE 2	$334,641

$427,937 and total annual operating and capital costs are estimated at $476,608. The cost per call is $350 for all calls.

Alternative 3 – Blank: Build Your Own

A blank column is available in **Tables 3, 4, and 5** 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 Haskell County 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, mileage and user fees, millage levies from formation of a special taxation district, and sales tax are presented in **Tables 8a – 8d.**

Mileage charges (**Table 8a**) are shown for $5.50 per mile, $6 per mile, $6.50 per mile, $7 per mile, $7.50 per mile, $8 per mile, $8.50 per mile, and $9 per mile for one-way (loaded) miles. For the Haskell County EMS, estimated one-way miles are approximately 86.1% of the total miles, for a total of 19,100 miles (22,174 x 86.1% = 19,100 miles one-way). Calculations are shown on how much revenue could be generated if 30, 40, 50, 60, 70, or 80 percent of the total fees are collected.

Table 8a

Haskell County EMS Service

Estimated Revenues - Mileage Fees

		Mileage Fees							
		$5.50	$6.00	$6.50	$7.00	$7.50	$8.00	$8.50	$9.00
For One-Way Miles	19,100	$105,050	$114,600	$124,150	$133,700	$143,250	$152,800	$162,350	$171,900
80% Collections	0.8	$84,040	$91,680	$99,320	$106,960	$114,600	$122,240	$129,880	$137,520
70% Collections	0.7	$73,535	$80,220	$86,905	$93,590	$100,275	$106,960	$113,645	$120,330
60% Collections	0.6	$63,030	$68,760	$74,490	$80,220	$85,950	$91,680	$97,410	$103,140
50% Collections	0.5	$52,525	$57,300	$62,075	$66,850	$71,625	$76,400	$81,175	$85,950
40% Collections	0.4	$42,020	$45,840	$49,660	$53,480	$57,300	$61,120	$64,940	$68,760
30% Collections	0.3	$31,515	$34,380	$37,245	$40,110	$42,975	$45,840	$48,705	$51,570

Table 8b

Haskell County EMS Service

Emergency and Non-Emergency User Fees Per Call

Total Calls	1,360	Emergency	155
Total Miles	22,174	Non-Emergency	1,071
Ave. Miles/Call	16	Non-Billable	134
		Total Calls	1,360

NON-EMERGENCY CALLS

		Estimated User Fee Per Call							
		$275	$350	$425	$500	$550	$600	$650	$700
Non-Emerg. Calls	1,071	$294,525	$374,850	$455,175	$535,500	$589,050	$642,600	$696,150	$749,700
80% Collections	80%	$235,620	$299,880	$364,140	$428,400	$471,240	$514,080	$556,920	$599,760
70% Collections	70%	$206,168	$262,395	$318,623	$374,850	$412,335	$449,820	$487,305	$524,790
60% Collections	60%	$176,715	$224,910	$273,105	$321,300	$353,430	$385,560	$417,690	$449,820
50% Collections	50%	$147,263	$187,425	$227,588	$267,750	$294,525	$321,300	$348,075	$374,850
40% Collections	40%	$117,810	$149,940	$182,070	$214,200	$235,620	$257,040	$278,460	$299,880
30% Collections	30%	$88,358	$112,455	$136,553	$160,650	$176,715	$192,780	$208,845	$224,910

EMERGENCY CALLS

		Estimated User Fee Per Call							
		$275	$350	$425	$500	$550	$600	$650	$700
Emergency Calls	155	$42,625	$54,250	$65,875	$77,500	$85,250	$93,000	$100,750	$108,500
80% Collections	80%	$34,100	$43,400	$52,700	$62,000	$68,200	$74,400	$80,600	$86,800
70% Collections	70%	$29,838	$37,975	$46,113	$54,250	$59,675	$65,100	$70,525	$75,950
60% Collections	60%	$25,575	$32,550	$39,525	$46,500	$51,150	$55,800	$60,450	$65,100
50% Collections	50%	$21,313	$27,125	$32,938	$38,750	$42,625	$46,500	$50,375	$54,250
40% Collections	40%	$17,050	$21,700	$26,350	$31,000	$34,100	$37,200	$40,300	$43,400
30% Collections	30%	$12,788	$16,275	$19,763	$23,250	$25,575	$27,900	$30,225	$32,550

Table 8c

Haskell County EMS Service

Estimated Revenues - Millage Levies

	TOTAL NET VALUATION*	THREE MILLS	TWO MILLS	ONE MILL
FY 2003				
Haskell County	$43,895,880	**$131,688**	$87,792	$43,896

* Based on Total Net Valuation of $43,895,580 which includes personal, real, and public property. Information received from Haskell County Assessor's Office.

Table 8d

Haskell County EMS Service

Estimated Revenues - Sales Tax Collection

FY 2003	Sales Subject to Sales Tax*	1/8¢ 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
Haskell County (1%)**	$67,536,000	$84,420	$168,840	$337,680	$506,520	$675,360	$1,013,040	$1,350,720

* Based on 2003 Haskell County Sales Tax Collections of $675,360 from Oklahoma Tax Commission, 2003.

** Current sales tax collection rate.

Table 8b shows the revenues possible for user fees with alternative collection rates. Base rates for ambulance user fees, starting at $275, and continuing with $350, $425, $500, $550, $600, $650, and ending with $700, are shown. These are shown based on transported emergency calls (**Table 2**) and transported non-emergency calls (**Table 2**), so that an EMS service could charge different rates for these two types of calls. Alternative collection rates are shown: 80%, 70%, 60%, 50%, 40%, and 30%. For the Haskell County EMS service, there were 1,226 billable calls, of those calls, 155 were considered emergency calls and 1,071 were non-emergency calls (refer to **Table 2**).

Table 8c 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 Haskell County for FY 2003 was $43,895,880. Three mills would generate $131,688, two mills $87,792, and one mill $43,896.

Table 8d illustrates the revenue from a sales tax collection. The table shows the revenues resulting from a 1/8 ¢, 1/4 ¢, 1/2 ¢, 3/4 ¢, 1 ¢, 1 1/2 ¢, and 2 ¢ tax collection based on FY 2003 sales tax collections from the Oklahoma Tax Commission.

To illustrate how to utilize the revenue tables, **Alternative 1, Funding Option #1,** (**Table 9**) would need an estimated $469,671 for total annual capital and operating expenses. One method to fund **Alternative 1, Funding Option #1,** is to charge a flat mileage fee (**Table 9**) of $8.50 (40% collections) to generate $64,940, to charge a non-emergency call fee (**Table 9**) of $425 (40% collections) to generate $182,070, and to charge an emergency call fee of $550 (40% collections) to generate $34,100 (**Table 9**). Revenues of $131,688 are received from the 3 mills from the 522 EMS District. The total of these four revenues is $412,798, which provides a deficit of $56,874 (**Table 9, Alternative 1, Funding Option #1**).

Table 9

Haskell County EMS System

Possible Funding Options

ALTERNATIVE 1 Funding Option #1		ALTERNATIVE 2 Funding Option #1		ALTERNATIVE 3 Funding Option #1	
Costs:		Costs:		Costs:	
Total Annual Capital & Operating Expenses	$469,671	Total Annual Capital & Operating Expenses	$476,608	Total Annual Capital & Operating Expenses	
Revenues:		Revenues:		Revenues:	
Mileage Fee, $8.50, 40%	$64,940	Mileage Fee, $8.50, 40%	$64,940		
Non-ER Fee, $425, 40%	$182,070	Non-ER Fee, $425, 40%	$182,070		
ER Fee, $550, 40%	$34,100	ER Fee, $550, 40%	$34,100		
522 EMS District (3 mills)	$131,688	522 EMS District (3 mills)	$131,688		
Total Revenues	$412,798	Total Revenues	$412,798	Total Revenues	
Difference	-$56,874	Difference	-$63,811	Difference	
ALTERNATIVE 1 Funding Option #2		**ALTERNATIVE 2 Funding Option #2**		**ALTERNATIVE 3 Funding Option #1**	
Costs:		Costs:		Costs:	
Total Annual Capital & Operating Expenses	$469,671	Total Annual Capital & Operating Expenses	$476,608	Total Annual Capital & Operating Expenses	
Revenues:		Revenues:		Revenues:	
Mileage Fee, $8.50, 40%	$64,940	Mileage Fee, $9, 40%	$68,760		
Non-ER Fee, $550, 40%	$235,620	Non-ER Fee, $550, 40%	$235,620		
ER Fee, $600, 40%	$37,200	ER Fee, $650, 40%	$40,300		
522 EMS District (3 mills)	$131,688	522 EMS District (3 mills)	$131,688		
Total Revenues	$469,448	Total Revenues	$476,368	Total Revenues	
Difference	-$224	Difference	-$241	Difference	

Another method to fund **Alternative 1** would be to increase transport fees. Assuming mileage and transport fees had a 40% collection rate, mileage revenue at $8.50 per mile would amount to $64,940 once again. Increasing the transport fees by $125 to $550 for non-emergency and by $50 to $600 for emergency would result in revenues of $235,620 and $37,200, respectively. Also, the 522 EMS District revenues of $131,688 would once again be included. With total annual capital and operating costs of $469,671 for **Alternative 1, Funding Option #2**, and revenues totaling $469,448 annually, a deficit of $224 would result (**Table 9, Alternative 1, Funding Option #2)**.

Table 9, Alternative 2, Funding Option #1 illustrates one methodology to cover the total annual capital and operating expenses of $476,608. Assuming 40% collections, a mileage fee of $8.50 would generate $64,940, a non-emergency fee of $425 (40% collection) would generate $182,070, and an emergency fee of $550 would generate $34,100 (40% collection). A 522 EMS District of 3 mills for Haskell County would generate an estimated $131,688. Therefore, total revenues are estimated to equal $412,798, creating a deficit of $63,811 (**Table 9, Alternative 2, Funding Option #1**).

Another method to fund **Alternative 2 (Table 9, Funding Option #2)** would be increasing mileage fees and transport fees to fund the total annual capital and operating expenses of $476,608. Assuming 40% collections, a mileage fee of $9 would generate $68,760, a non-emergency fee of $550 would generate $235,620, and an emergency fee of $650 would generate $40,300. A 522 EMS District of 3 mills for Haskell County would generate an estimated $131,688. Therefore, total revenues of $476,368 for **Alternative 2, Funding Option #2** would leave a deficit of an estimated $241 (**Table 9, Alternative 2, Funding Option #2**).

A blank column is available in **Table 9** 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.

Conclusion

The analysis of the Haskell County 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 Haskell County 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, or personnel in the EMS Division of the Oklahoma State Health Department.

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.

[3] St. Clair, Cheryl F., Christie, Kirk D., Trzebiatowski, Sarah, Doeksen, Gerald A., et al. "A Systems Development Guide for Emergency Medical Services: A Systematic Approach to Funding and Administration." EMS Division, State Health Department; Oklahoma Cooperative Extension Service, Oklahoma State University, 2003.

Appendix A

Appendix A

American College of Surgeons
Essential Ambulance Equipment

Prices vary according to manufacturer and retail dealer, as well as accessories included. Prices for all hardware are subject to wide variations depending on whether a trauma bag, for example, is a hard or soft case, whether or not it is fully stocked, etc.

Basic Life Support Equipment

1 ea.	A functioning portable suction apparatus with wide-bore tubing (1/4"), rigid and soft suction catheters for adults, children, and infants, which may be electronically, manual or oxygen powered	
	Electric powered	$ 600.00
	Manual powered	$ 100.00
	Rigid catheters (pkg/5)	$ 20.00
	Soft catheters (pkg/5 $7.00 x 3)	$ 21.00
1 ea.	An adult, pediatric and infant bag-valve-mask resuscitators with an adult, child, and infant clear mask	
	Disposable, adult w. reservoir bag (case/6)	$ 100.00
	Disposable, child w. reservoir bag (case/6)	$ 120.00
	Disposable, infant w. res. bag (case/6)	$ 120.00
1 set.	Oropharyngeal airways, set or a minimum of one (1) of each size for adult (size 7, 9, or 9), child (size 3, 4, 5, or 6), and infant (sizes 0, 1, or 2) - nasal pharyngeal airways are optional	
	Lifesaver Kit	$ 30.00
1 set	Portable and wall-mounted oxygen sets, with variable flow regulators and adequate length tubing, and an extra bottle of portable oxygen	
	Wall-mounted flow meter	$ 70.00
	Portable Resuscitator w. case	$ 800.00
	Aluminum "D" cylinders ($95. X 2)	$ 190.00
Supply	Oxygen masks in adult, child, and infant sizes, and cannulas for adults	
	Adult non-rebreather mask (case/50)	$ 80.00
	Ped. non-rebreather mask (case/50)	$ 100.00
	Infant non-rebreather mask (pkg/5)	$ 15.00
	Adult simple mask (case/50)	$ 47.00
	Ped. simple mask (case/50)	$ 67.00
	Adult nasal cannula (case/50)	$ 33.00
1 ea.	Bite Stick (pkg/10)	$ 10.00
1 ea.	Pocket mask w. one-way valve and oxygen inlet	$ 20.00
2 ea.	Sterile Burn Sheets ($20 ea.)	$ 40.00
50 ea.	Sterile 4"x4" dressings (box/100)	$ 22.00
6 ea.	Sterile 6"x8" or 8"x10" dressings (8"x7 ½" tray/20 $7.00) (8"x10" tray/20 $10.00)	$ 10.00

Appendix A

Basic Life Support Equipment (Continued)

10 ea.	Roller bandage, soft (kerlix, kling, or equivalent) and/or elastic (2" or larger)		
		4" non-sterile kling (bag/12)	$ 12.00
4 ea.	Rolls of tape (1/2" or larger)	(1" hypoallergenic, box/12)	$ 17.00
4 ea.	Sterile occlusive dressings, 3"x8" or larger (box/24)		$ 35.00
8 ea.	Triangular bandage ($2.25 ea.)		$ 18.00
1 pr.	Bandage Scissors		$ 5.00
1 ea.	Traction splint for lower extremity, with limb support slings, padded ankle hitch, padded pelvic support, traction strap		
		Adult & Pediatric package, hare type	$ 300.00
1 set	Upper and lower extremity splints for joint above and below fracture (such as pneumatic, wire ladder, wood, cardboard)		$ 60.00
	Air splint set, complete	$60	
	Wire ladder set (pkg/12)	$60	
	Cardboard (pkg/12)	$50	
	Wood (set/6)	$37	
2 ea.	Short spine board or vest type including straps and accessories		
		Kendrick-type $140 x 2	$ 280.00
2 ea.	Long spine board including straps and accessories		
		Polyethylene w. speed-clips $190 x 2	$ 380.00
		Speed-clip straps $16 ea. x 8	$ 128.00
		Head Immobilizer (foam/vinyl blocks $95) x 2 (cardboard, up to $15)	$ 190.00
1 set	Rigid extrication collars in large, medium, small adult sizes, and pediatric sizes for children ages 2 years and older and infants ($12 ea. w. $30 bag)		$ 100.00
1 ea.	Portable blood pressure set in adult, child, and infant sizes (multi-cuff kit)		$ 135.00
1 ea.	Stethoscope		$ 20.00
1 ea.	Pneumatic anti-shock garment, compartmentalized, control valves, inflation pump		$ 800.00
1 ea.	Obstetrical kit, sterile		$ 15.00

Appendix A

Basic Life Support Equipment (Continued)

Supply	Universal communicable disease precaution equipment, including gloves, mask, gown, goggles, and other universal precautions	
	combo-masks box/25	$ 33.00
	gowns box/15	$ 33.00
	goggles $6 pr. per crew member x 10	$ 60.00
	gloves $10/box x 4 asst. sizes	$ 40.00
1 ea.	Blood glucose measurement equipment per protocol	$ 100.00
1 ea.	sturdy, lightweight, all-level cot for primary patient	
	hare any level cot w. mattress & straps	$1,700.00
	heavy duty cot complete	$3,100.00
1 ea.	crash stable side or center mounting cot fastener	$ 300.00
2 ea.	five pound ABC fire extinguisher ($35 ea.)	$ 70.00
1 ea.	Flashlight (3 cell mag-lite)	$ 25.00
1 ea.	Trauma Bag complete	$ 250.00
Basic Extrication Tools can be purchased at the local hardware		$ 200.00
	Subtotal	$7,921.00
	Optional BLS Equipment	
1 ea.	Pulse Oximetry Device	$1,700.00
1 ea.	Semi-Automated Advisory Defibrillator	$3,500.00
	Total cost to equip one BLS ambulance	$13,121.00

Appendix A

Advanced Life Support Supplies & Equipment

Intravenous administration equipment			$637.00
Supplies of 12 each solution:	5% dextrose in water $4.50 ea.	= $54.00	
	Lactated Ringer's Sol. $5.00 ea	= $60.00	
	0.9% Normal Saline $4.00 ea.	= $48.00	
Administration sets pkg/12	10 drops/ml set w. inject. site	$45.00	
	60 drops/ml set	$45.00	
quik-cath IV catheters pkg/10	14 g. x 2"	$18.00	
	16 g. x 2"	$18.00	
	18 g. x 1 ¼"	$18.00	
	20 g. x 1 ¼"	$18.00	
	22 g. x 1 ¼"	$18.00	
IV start kit box/50 x 1.90		$95.00	
veni-gard dressings box/100		$65.00	
Alcohol prep pads case/10 boxes		$25.00	
Iodine prep pads case/10 boxes		$110.00	
Intraosseous administration equipment per protocol	case/10 18 g. jamshidi		$170.00
Advanced Airway Equipment			$669.00
Esophageal Obturator Airway, complete 2 x $65		= $130.00	
Laryngoscope handle and blades	standard set complete	$350.00	
	standard blades $35 ea. x 9	= $315.00	
	fiber-optic blades $100 ea. x 9	= $900.00	
	stylettes $4 ea x 2 ea x 3 sizes	= $ 24.00	
Endotracheal tubes assorted sizes	3 kits include 1 ea. adult size $35	= $105.00	
	3 kits include 1 ea. child size $20	= $ 60.00	
OSHA approved Sharps Containers			$30.00
Blood Sampling Equipment			$150.00
	Total Intermediate Life Support Supplies		$1,656.00

Paramedic Life Support Equipment & Supplies

Cardiac monitor/defibrillator - according to manufacturer options, prices vary from $5,000 to $12,000
Pre-load drugs per medical protocols - prices vary according to preferences and according to market

An additional budget of $20,000 for paramedic level supplies and equipment is not unreasonable.

Appendix B
Blank Forms

Haskell County EMS
Estimated Capital Expenditures

	Alternative ____			Alternative ____		
Capital Items	Unit Cost	No.	Total Capital Costs	Unit Cost	No.	Total Capital Costs
Building						
Vehicle - Type ____						
Vehicle Equipment _____						
Vehicle Radios						
Oxygen Sets						
Portable Radios/Phones/Pagers						
Total Capital Costs						

Haskell County EMS
Estimated Annual Capital Expenses

	Alternative ____			Alternative ____		
Capital Items		Yrs.	Annual Capital Costs		Yrs.	Annual Capital Costs
Building						
Vehicle - Type III						
Vehicle Equipment _____						
Vehicle Radios						
Oxygen Sets						
Portable Radios/Phones/Pagers						
Total Annual Capital Costs						

Haskell County EMS

Estimated Annual Operating Expenses, Total Annual Cost, and Costs per Call

	Alternative ____			Alternative ____		
Operating Expense Items	Unit Cost	Yrs.	Total Operating Costs	Unit Cost	Yrs.	Total Operating Costs
Bldg. Rent						
Bldg. Utilities						
Bldg. Maint/Repairs						
Bldg. Ins.						
Vehicle Expenses						
Fuel						
Maintenance/Repairs/Inspections.						
Insurance						
Vehicle Radios						
Portable Radios/Phones/Pagers						
Licensing Expense						
Medical Supply Expense						
Labor Costs						
Office Supplies						
Training Expense						
Laundry						
Billing Costs						
Administrative Costs						
Wrkrs Cmp/ Insurance/Benefits						
Miscellaneous						
Total Annual Operating Costs						
Total Annual Capital & Operating Costs						
Cost Per All Calls						
Cost Per Transport Calls						

Haskell County EMS

Estimated Labor Expenses

	Alternative ____	Alternative ____
Paid Supervisor		
Paid Staff		
Volunteer - Call Pay		
Volunteer - Transport Pay		
TOTAL BASE SALARY		
Estimated Overtime (____ %)		
TOTAL BASE SALARIES AND OVERTIME		
BENEFITS (____%)		
TOTAL LABOR COSTS		

Haskell County EMS
Estimated Revenues - Mileage Fees

		Mileage Fees				
		$__.____	$__.____	$__.____	$__.____	$__.____
For One-Way Miles	_____	$_____	$_____	$_____	$_____	$_____
___% Collections	___%	$_____	$_____	$_____	$_____	$_____
___% Collections	___%	$_____	$_____	$_____	$_____	$_____
___% Collections	___%	$_____	$_____	$_____	$_____	$_____
___% Collections	___%	$_____	$_____	$_____	$_____	$_____
___% Collections	___%	$_____	$_____	$_____	$_____	$_____

Haskell County EMS

Emergency and Non-Emergency User Fees Per Call

Total Calls	____	Emergency	___
Total Miles	_____	Non-Emergency	____
Average Miles per Call	____	Total Calls	____

NON-EMERGENCY CALLS

		Estimated User Fee Per Call							
		$____	$____	$____	$____	$____	$____	$____	$____
Non-Emerg. Calls	_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____

EMERGENCY CALLS

		$____	$____	$____	$____	$____	$____	$____	$____
Emergency. Calls	_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____
____% Collections	____%	$_____	$_____	$_____	$_____	$_____	$_____	$_____	$_____

Haskell County EMS
Revenue Alternatives

ALTERNATIVE _____		ALTERNATIVE _____	
Costs:		Costs:	
Total Annual Capital & Operating Expenses	$	Total Annual Capital & Operating Expenses	$
Revenues:		Revenues:	
	$		$
	$		$
	$		$
	$		$
	$		$
Total Revenues	$	Total Revenues	$
Difference	$	Difference	$

ALTERNATIVE _____		ALTERNATIVE _____	
Costs:		Costs:	
Total Annual Capital & Operating Expenses	$	Total Annual Capital & Operating Expenses	$
Revenues:		Revenues:	
	$		$
	$		$
	$		$
	$		$
	$		$
Total Revenues	$	Total Revenues	$
Difference	$	Difference	$