System Cost Exercise

System Description

The system is an all-ALS system with fire department first response, and operates under the PUM structure. The response time standard is 8 minutes with 90% reliability (fractile). The system is responsible for emergency and non-emergency markets. The Fire Department charges the EMS system for first responder services on a per call basis. Space is rented from local fire departments to house the ambulances and medical control is paid by the EMS system on a contractual basis. The county provides a tax subsidy of $400,000 per year.

Population:	600,000
Land Mass:	200 miles^2
Call Volume:	36,000 calls per year
Transport rate:	79%
Fire Department responses:	40% of all calls
Revenue collection rate:	60% of total billed
Unit hours deployed:	87,500 per year
Average service time (minutes):	45

Variable Costs (per call)

Maintenance	$5
Fuel	$6
Supplies	$65

Labor Costs (per unit hour)	$40

First responder services	$30 (per call)

Fixed Costs (annual)

Administrative staff	$400,000
Vehicle replacement fund	$250,000
Utilities	$5,000
Rent	$40,000
Insurance	$20,000
Communications	$70,000
Equipment replacement fund	$80,000
Medical Control	$80,000

Calculate the following using a spreadsheet:

1. Calculate each of the following:

   Total overhead costs   _____
   First responder costs   _____
   Total labor costs   _____
   Total variable costs   _____
   Total system costs   _____
   Unit hour cost   _____
   Unit hour utilization   _____
   Cost per call   _____
   Cost per transport   _____
   Cost per capita   _____

2. If there were no tax subsidy, what price would you charge to break even?
3. With the given tax subsidy, what price would you charge to break even?
4. Using the total system cost, annual number of transports, and the given collection rate, calculate the break-even user fee for each of the following levels of tax subsidy:

   Subsidy (dollars)
   100,000
   150,000
   200,000
   250,000
   300,000
   350,000
   400,000
   450,000
   500,000
   550,000
   600,000
   650,000
   700,000
   750,000
   800,000
   850,000
   900,000
   950,000

5. Graph the user fee against the tax subsidy for each level of subsidy (use tax subsidy for the X axis).
6. How much is a dollar of tax subsidy worth to you given the above information?
7. For every one dollar increase in system cost, how much must you increase your user fee?