EMS SYSTEM DESIGN ASSIGNMENT

This is the final assignment of EMC 445. As such, it requires you to use many of the skills acquired in the course, including queuing theory, developing staffing plans, projecting personnel costs, projecting revenues, and budgeting. In this exercise, you will be given data on a group of EMS systems. You are to assume that you are the administrator of a large, private ambulance service and will be submitting a bid to provide full service EMS (ALS and BLS) to these counties on a regional basis. Government officials from all of these counties have organized themselves into a collective bargaining unit for the purpose of contracting for the provision of ambulance services in their counties. Your company will receive an exclusive franchise for service for all of the counties as a whole. You are to submit the following items to me by the due date listed in the syllabus:

1. Your staffing plan for each base, including shift rotations and level of certifications. Your shift schedules should be realistic. For example, it would be unrealistic to expect someone to work split shifts (e.g., 7a-1p then return at 5p and work until 11p). Don't forget to include enough FTE's to cover benefit time (holiday, sick, vacation, etc.).
2. A spreadsheet file with your ANNUAL personnel costs, including overtime calculations and fringe benefits.
3. A spreadsheet file with your ANNUAL budget for the year, including personnel costs, operating costs, projected revenues, profit/loss, and requested tax subsidies (if any).
4. A cover letter written to the Director of the EMS Authority detailing how you will provide services including staffing plans, certification levels, pay scales, etc. This letter should also include your request for your annual tax subsidy (if necessary). Please include a hard copy of your spreadsheets.
5. A NOTE sheet providing any assumptions you used in designing your system or performing your calculations.

NOTE: Because of the time required to analyze your work, late assignments cannot be accepted.

The following pages will provide background information on the EMS systems of the 8 counties that you plan to take over and organize into a single EMS system.

Background of the System

1. Geography

The area is comprised of urban, suburban, and rural areas. The transportation network consists of interstates, primary and secondary highways, as well as undeveloped roadways. There are several impediments to travel including rivers and natural and manmade bodies of water with limited roadway crossovers. The land mass includes portions of the foothills and piedmont. A map of the region is given in Appendix 1.

2. Demographics

There are eight counties within the region with a population of roughly 1.2 million.

3. Description of Existing Bases and Staffing

Emergency Medical Services in Region F are provided by eight individual EMS systems operated, either partly or wholly, by county government. This is accomplished by means of 51 ALS level ambulances, 4 BLS ambulances, and 3 "medic units" operating out of 44 ambulance bases within the region. This section will provide a brief description of the EMS system for each county within the region. Table 1 profiles the EMS operations of each county within the region and table 2 provides details on the ambulances currently operating within the region. Appendix 2 depicts each county's geographical boundaries, location of ambulance bases, and their corresponding response districts. Appendix 3 provides the spatial distribution of call volume.

Table 1. Summary of County EMS Operations.

County	Population	Number of Ambulance Bases	Number of Staffed Ambulances	Call Volume
Cabarrus	11,030	5	6	7,835
Gaston	181,466	6	9	25,000
Iredell	103,412	4	6	7,259
Lincoln	56,017	3	3	4,700
Mecklenburg	579,473	10	14	41,000
Rowan	119,211	4	5	10,000
Stanly	54,172	3	4	4,800
Union	99,155	7	7	5,486
TOTAL	1,203,936	42	54	106,080

Cabarrus County operates five ALS level ambulances 24 hours per day and 7 days per week (168 hours per week) and one ALS ambulance is operated from 8:30 a.m. to 4:30 p.m. Two paramedics staff each ambulance. Two ambulances are located at each of two bases, one base houses a medic unit and a single ALS ambulance, and one ambulance is solely stationed at a third base. One additional base contains a single medic unit. This base is located in an outlying area where call volumes are lower, and presumably, do not justify the cost of a transport capable ambulance. The medic units are operated 168 hours per week. There is also a private ambulance provider in the county providing BLS response. The county manager indicates that this provider is franchised and must be permitted to continue operations in the county.

Gaston County EMS provides emergency and non-emergency service from 6 ambulance bases. Each base houses one ALS ambulance staffed by two paramedics. These ambulances are operated 168 hours per week. In addition, one base houses three BLS level units, each of which is staffed by personnel trained to the EMT-Intermediate level. The BLS ambulances are operated 8:30 a.m. - 4:30 p.m. during weekdays and are responsible for non-emergency calls. There are no medic units.

Iredell County EMS is responsible for all emergency and non-emergency calls within Iredell County. Six ALS level ambulances are operated 168 hours per week and staffed by two paramedics each. Four ambulance bases are located within the county. Two bases contain two ambulances each and a single ambulance is housed at each of the remaining two bases. No medic units are routinely staffed, though administrative personnel occasionally operate a medic unit during times of peak demand.

Lincoln County EMS is operated as a joint venture between the County of Lincoln and Lincoln County Hospital. Two paramedics each staff three ALS ambulances. Three ambulance bases each house a single ambulance which is operated 168 hours per week. Lincoln County EMS is responsible for all emergency and non-emergency calls within the county.

Mecklenburg County EMS operates 14 ALS level ambulances 168 hours per week out of 10 ambulance bases. One base houses three ambulances and two bases house two ambulances. The remaining bases each house a single ambulance. Two paramedics staff each ambulance. There are no medic units.

Rowan County EMS provides emergency and non-emergency service utilizing five ALS level ambulances and 1 BLS level ambulance. The ALS ambulances are operated 168 hours per week and staffed by two paramedics each. A crew of two certified at the EMT-Intermediate level staffs the BLS ambulance. The BLS ambulance is operated 8:00 a.m. - 5:00 p.m. during weekdays. Rowan County EMS operates four ambulance bases. One base houses two ALS ambulances, one houses one ALS and one BLS ambulance, and the remaining two bases each house a single ALS ambulance. There are no medic units.

Stanly County EMS is responsible for all emergency and non-emergency work within the county. Three ALS level ambulances are each staffed by two paramedics and operated 168 hours per week. Each ambulance is located at one of three bases. An additional ALS level ambulance is housed at one base and operated 8:30 a.m. - 4:30 p.m. during weekdays. Two paramedics also staff this ambulance. There are no medic units in Stanly County.

Union County EMS responds to emergency and non-emergency requests within the county. Seven ALS level ambulances and one medic unit are operated out of 7 bases. One base houses two ambulances and the remaining bases each house a single ambulance. All seven ambulances are staffed by two paramedics and operated 168 hours per week. One additional base houses a medic unit. The medic unit is staffed by a single paramedic and is operated 168 hours per week.

Table 2 summarizes information on the ambulances presently operated within the region. The call service area is the geographical response district of each ambulance base and corresponds with the district numbers given in figure 1. Staffing for each ambulance base is depicted in table 2 as the number of ambulances staffed, their level of care (EMT-Paramedic (P) or EMT-Intermediate (I)), and the hours of operation if the ambulance does not operate 24 hours per day and 7 days per week. Non-transporting medic units are designated as "*MEDIC." For example, response district 7, which is located in Rowan County, operates a single paramedic ambulance 24 hours per day and 7 days per week. In addition, an ambulance staffed at the EMT-Intermediate level is operated Monday through Friday from 8 a.m. to 5 p.m. The staffing of other districts is similarly described in table 2.

Table 2. Current Staffing of Each County

Call Service Area	Ambulance Staffing	County
1	1 P (24)	Iredell
2	2 P (24)	
3	1 P (24)	
4	2 P (24)	
5	1 P (24)	Rowan
6	2 P (24)	
7	1 P (24)	
	1 I (8:00-5:00, M-F)	
8	1 P (24)	
9	1 P (24)	Lincoln
10	1 P (24)	
11	1 P (24)	
12	1 P (24)	Gaston
13	1 P (24)	
	3 I (8:30-4:30, M-F)	
14	1 P (24)	
15	1 P (24)	
16	1 P (24)	
17	1 P (24)	

18	1 P (24)	Mecklenburg
19	1 P (24)	
20	2 P (24)	
21	1 P (24)	
22	1 P (24)	
23	1 P (24)	
24	2 P (24)	
25	1 P (24)	
26	1 P (24)	
27	3 P (24)	
28	1 P (24)	Cabarrus
29	1 P (24)	
30	1 P (24)	
31	1 P (24) *MEDIC	
32	2 P (24)	
33	1 P (24) *MEDIC	
34	1 P (24) (8:30-4:30)	
35	1 P (24)	Stanly
	1 P (8:30-4:30)	
36	1 P (24)	
37	1 P (24)	
38	1 P (24)	Union
39	1 P (24)	
40	2 P (24)	
41	1 P (24) *MEDIC	
42	1 P (24)	
43	1 P (24)	
44	1 P (24)	

4. Current System Performance

Table 3 lists the performance parameters of the existing system in each of the districts for each county. The “Fraction In-Limit” column provides the fraction of emergency responses reached within 8 minutes. The “Fraction Oout-of-District” column indicates the fraction of responses for that district in which an ambulance from a neighboring district responded into that district. High levels of OOD responses may indicate an understaffing problem that is being addressed using backup coverage from other districts.

Table 3. Performance of Current EMS Systems

Response District	Mean Emergency Response Time	Fraction In-limit	Mean Non-Emergency Response Time	Fraction Out-of-District Responses
1	10.89	.257	16.61	.245
2	9.63	.457	14.76	.262
3	9.07	.476	14.87	.384
4	8.35	.559	13.79	.118
5	10.16	.154	15.65	.517
6	8.65	.580	14.35	.231
7	11.18	.191	17.07	.390
8	10.91	.195	18.55	.465
9	12.04	.189	24.12	.171
10	11.17	.361	17.53	.407
11	11.96	.172	19.42	.348
12	9.48	.416	17.36	.328
13	10.41	.386	18.21	.641
14	9.52	.225	16.98	.609
15	9.51	.214	15.66	.516
16	9.20	.390	14.90	.477
17	9.21	.319	15.42	.346
18	9.68	.304	14.97	.178
19	9.43	.133	15.11	.620
20	8.51	.369	13.4	.348
21	8.92	.405	15.05	.357
22	9.39	.328	14.39	.530
23	9.19	.336	14.45	.377
24	8.79	.346	14.21	.328
25	9.47	.195	14.91	.539
26	8.52	.411	13.76	.626
27	9.19	.469	19.74	.484
28	9.71	.244	19.4	.577
29	7.99	.581	21.93	.535
30	9.12	.275	13.06	.117
31	12.40	.007	Not available	Not available
32	7.47	.547	Not available	.102
33	11.65	.005	Not available	Not available
34	11.76	.000	Not available	Not available
35	9.55	.183	15.32	.133
36	11.43	.135	16.63	.305
37	11.04	.139	17.08	.194
38	9.33	.174	15.25	.128
39	9.72	.367	14.74	.095
40	8.85	.268	14.34	.433
41	11.03	.049	17.52	.000
42	9.54	.227	14.46	.093
43	8.82	.251	13.5	.461
44	8.99	.293	14.36	.242

County	Mean Emergency Response Time	Fraction In-limit	Mean Non-Emergency Response Time	Fraction Out-of-District Responses
Cabarrus	8.71	.453	N/A	.573
Gaston	9.18	.365	14.88	.502
Iredell	8.63	.504	13.73	.183
Lincoln	13.26	.216	21.74	.595
Mecklenburg	8.61	.371	13.85	.443
Rowan	12.37	.286	19.71	.515
Stanly	10.06	.170	16.00	.179
Union	9.31	.253	14.70	.406
REGION	9.33	.355	16.18	.445

5. Queuing Analysis

Appendix 4 contains a 90% reliability queuing analysis of each response district.

6. Operations Information

Table 4 provides the type of transport for the entire system. Notice that the non-transport rate is relatively high. This is not uncommon for government operated EMS systems.

Table 5 provides the fraction of emergency dispatches for each county. Note that all dispatched calls in Cabarrus County are emergencies because their contracted private BLS service provides all non-emergency response. This BLS service must remain in the system because of this contractual arrangement.

Table 4. Transport Priorities

No Transport	0.396
Emergency Transport	0.224
Non-emergency Transport	0.380

Table 5. Fraction of Emergency Responses by County

County	Fraction of Emergency Dispatches
Cabarrus	1.00
Gaston	0.714
Iredell	0.544
Lincoln	0.547
Mecklenburg	0.861
Rowan	0.588
Stanly	0.494
Union	0.665

7. Political Issues

The county representatives have indicated that this a major move for all of the counties, and while all county boards of commissioners have approved the concept, the approval was not unanimous. As such, the contract is politically sensitive, and certain political realities of the contract must be addressed.

A. A private BLS contractor in Cabarrus County has been in operation for many years. The owner is politically connected and the county manager believes that it would be best that the private provider be allowed to continue to provide all BLS level care in the county. In addition, the county attorney indicates that the private contractor has a valid franchise agreement and fears an antitrust suit could be brought against the county if the company were forced out.

B. Most of the county managers indicate that switching to a regional system has generated considerable media attention as well as concern among the citizens. The most prominent concern among the citizenry is that ambulances may be moved from their communities. As a result, the contract specifies that all existing EMS bases must remain open. The contract also specifies that ambulances may be dispatched to other districts when the need arises, but there should not be any routine redeployment of ambulances to other districts as part of a standby policy or SSM plan. The county representatives want to ensure that the ambulances remain visible in their "home" districts.

C. Some of the county systems staff each ambulance with two paramedics, whereas others staff each ambulance with one paramedic and one EMT-I. There has been considerable commentary by the field personnel regarding this issue. Paramedics employed by systems with two paramedics on each ambulance fear staffing will be reduced to a single paramedic. Paramedics employed by the other systems are optimistic they will see an increase in staffing to an all paramedic system. The contract simply states that all ALS ambulances must be staffed by at least one paramedic and BLS ambulances (if used in the system) must be staffed by at least one EMT-I. A single paramedic must staff each Medic unit.

D. There is no requirement on the total number of ambulances that must be staffed or during what hours. The only stipulation is that each existing base must have at least one ambulance. For political reasons mentioned above, no ambulance bases can be closed. In addition, the county managers mention that this is a bad budget year and that no additional bases can be constructed this year. According to the contract, the counties will maintain ownership of the bases and will lease them back to the contracting agency. All new bases that may be constructed in the future will likewise be built and owned by the county in which it resides.

8. Response Issues

A. All of the ambulance bases are capable of housing multiple vehicles. Because of some foresight in designing these bases, they have extra bays and excess capacity such that additional ambulances and their crews can be housed without incurring expansion costs.

B. Currently, ambulances are permitted to respond across districts whenever necessary, but cannot cross county boundaries. Interdistrict backup response is permitted in the contract. However, now that a single contractor is providing EMS in the region, intercounty response is permitted if you so choose to build that into your dispatch policy.

C. The closest ambulance will always be dispatched to calls, regardless of any rotating dispatch policy. In addition, ambulances that are departing the hospital en route to their home base may be dispatched to a call if they are the closest available ambulance.

D. The following regression equations estimate response time:

Emergency response time = $2.677 + 3.214 \sqrt{\text{travel distance}}$

Non-emergency response time = $5.424 + 4.540 \sqrt{\text{travel distance}}$

E. The performance contract stipulates that a transport ambulance must be on the scene of all emergency responses within 12 minutes. The penalty for delayed response is $5 per minute for each minute beyond 12.

9. Personnel Issues

A. The prevailing hourly wages in the market are:

EMT-B	$8.00
EMT-I	$9.00
EMT-P	$11.00

B. The benefits for each employee include:

Sick time	8 hours/month
Vacation	12 hours/month
Holiday	80 hours/year
Educational leave	24 hours/year

C. The associated costs of labor are:

Unemployment tax	1.00% of wages
Social security tax	7.65% of wages
Workman's compensation premium	1.00% of wages
Retirement contribution	6.50% of wages
Health insurance	$2000 per employee per year

D. Because you are a private company, overtime must be compensated at a rate of 1.5 times the hourly rate for each hour worked beyond 40 hours in a given week. Fluctuating workweek methods for overtime compensation are not permitted. Assume that each employee is entitled to all "built-in" overtime, even if he/she uses benefit time (e.g., vacation or sick leave) during a given week.

E. For each employee, there is a $200 allotment for uniforms.

F. Part-time personnel, at the same cost as a full-time employee, can cover all sick leave, vacation, and holiday time.

10. System Cost Issues

A. First Responders from the local fire departments respond to an average of 33% of all emergency responses. The fire departments charge you $30 per response.

B. Variable costs per call (including cost of Medic Unit response):

Medical supplies	$20
Vehicle maintenance	$4
Fuel	$6

C. Overhead Cost:

Administrative staff	$1,840,000 per year
Base lease	$140,000 per year
Utility costs	$106,000 per year
Medical Direction	$150,000 per year
Equipment depreciation (not vehicle)	$500,000 per year
Insurance	$100,000 per year

D. You must set aside enough money to replace your vehicles in a timely manner. You should assume that each ambulance costs $90,000 and has a useful life of 5 years. You should also assume that your fleet size is 130% of the total number of ambulances staffed during your peak demand. Medic Units cost $50,000 each and have a useful life of 8 years. There are no backup Medic Units in the fleet. You may ignore staff vehicles.

11. Revenue Issues

A. Payor Mix

Payor	Percentage
Medicare	43%
Medicaid	16%
Private Insurance	19%
Self-pay	22%

B. Reimbursement

1. The base rate for medicare is $200 per call and $5 per loaded transport mile. Of all medicare requests for payment, 85% are approved. Of the unapproved requests for payment, you may bill the patient directly for the full charge for services (may be greater than $200). The collection rate for unapproved medicare claims billed directly to patients is 20%. Of the approved claims, your medicare reimbursement is $200 per call and $5 per loaded transport mile. Medicare pays 80% of this amount, with the patient responsible for the remaining 20%. Of this residual amount billed to the patient, you collect only 50%. Although your actual ambulance bill may exceed the medicare base rate of $200, medicare will only pay up to 80% of the $200 amount and $5 per transport mile. You must write off the remainder. However, you may bill private insurers and self-insured patients the full amount.
2. You may assume that 70% of all Medicaid claims are approved. Medicaid pays $85 on all approved claims. There is no copay to patients billed through Medicaid (i.e., if Medicaid approves the claim, you may not bill the patient for any amount). There is no mileage reimbursement through Medicaid. If Medicaid does not approve the claim, however, you may bill the patient for the full amount of the bill, which may exceed the $85 Medicaid allowance. In addition, if Medicaid denies the claim, you may bill the patient directly for mileage at whatever mileage rate you establish. Your collection rate on bills refused by Medicaid and billed directly to the patient is 30%.
3. Private insurance approves 80% of all claims and pays 75% of the total billed amount. You may bill patients directly for denied claims and the residual 25% of the bill not covered by insurance. Your collection rate on any amount billed to patients with private insurance is 70%.
4. On average, your collection rate on self-pay patients is 10% of the billed amount.
5. The contract does not allow for billing patients for services if they are not transported.
6. The average loaded transport mileage for each transport is 10 miles.

C. Profit Margin

Your target profit margin is 6% of total operating expenses. Thus, if your revenue does not equal 106% of operating cost, you should request the difference from the county governments in the form of tax subsidies.

D. Tax subsidy and Ambulance Fees

You should establish your billing structure and tax subsidy request such that you cover all costs of operations with an additional 6% profit margin. You are free to establish whatever fee for service you desire, but remember that Medicare and Medicaid reimbursement is fixed and any shortfalls must be offset by higher tax subsidies. (Hint: There is no reason to ever charge below Medicare prevailing rates. Doing so will simply shift the financial burden away from the Medicare program and onto local taxpayers.)

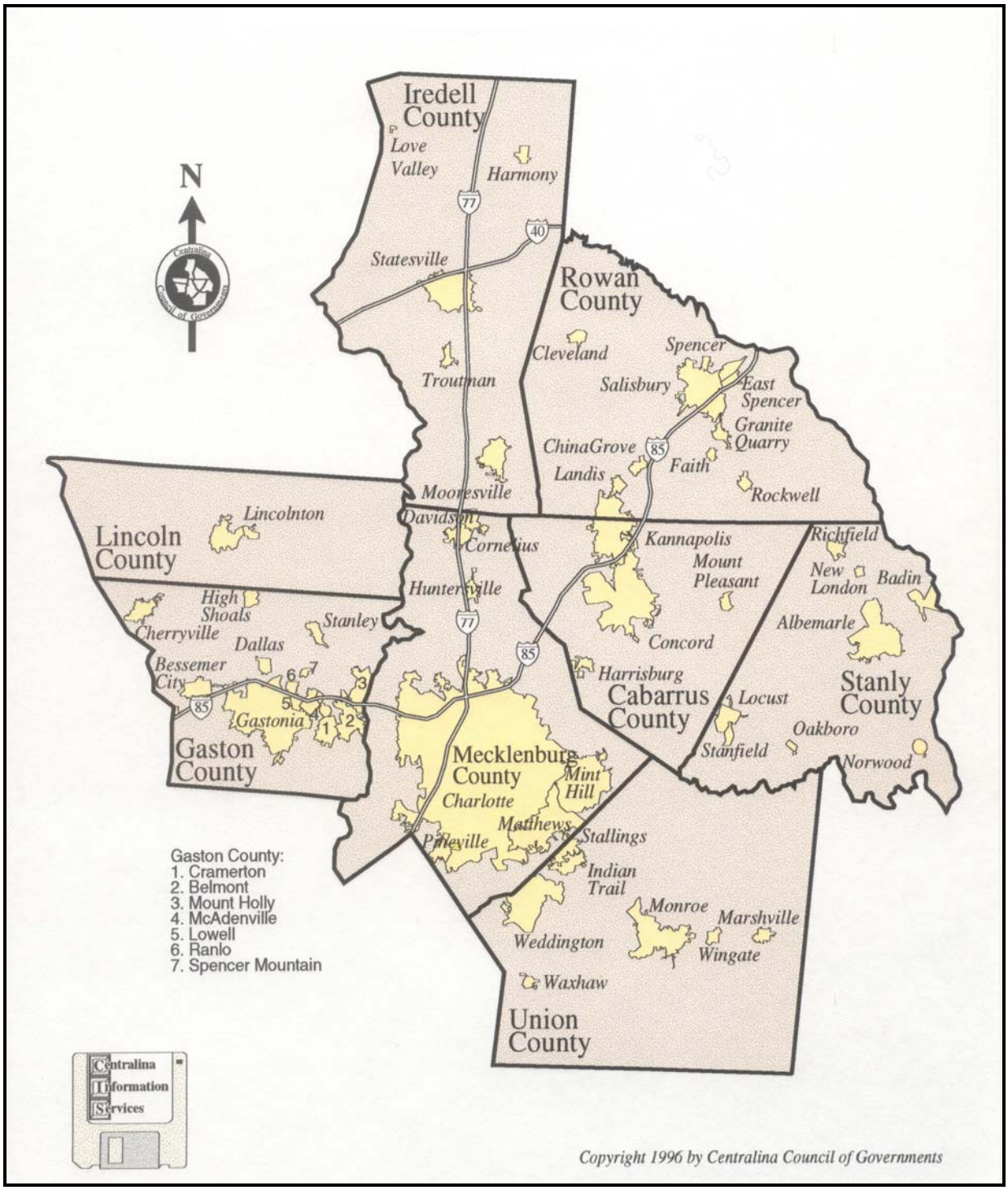
12. Call Volume Estimate

One of your staff members was working on a forecast of your projected call volume for the upcoming year. Unfortunately, he was lured away by another company who offered a higher salary and better benefits. He did provide you with an estimate of 110,090 total call volume for the year.

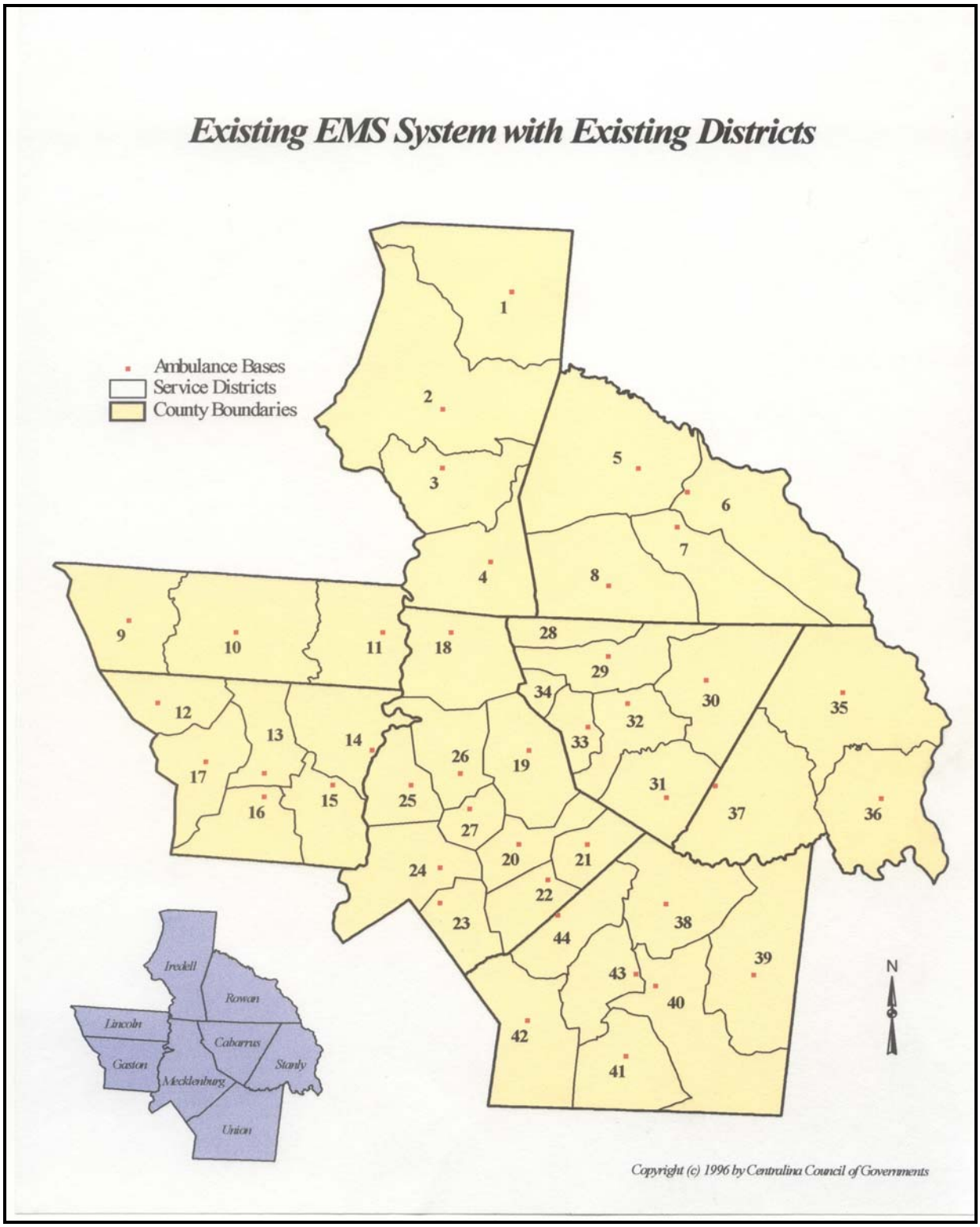
13. Disclaimer

This exercise is based on the actual performance of the EMS systems of Region F and is intended for instructional purposes only. Certain data have been altered and do not necessarily reflect the administrative decisions or performance of the EMS systems involved.

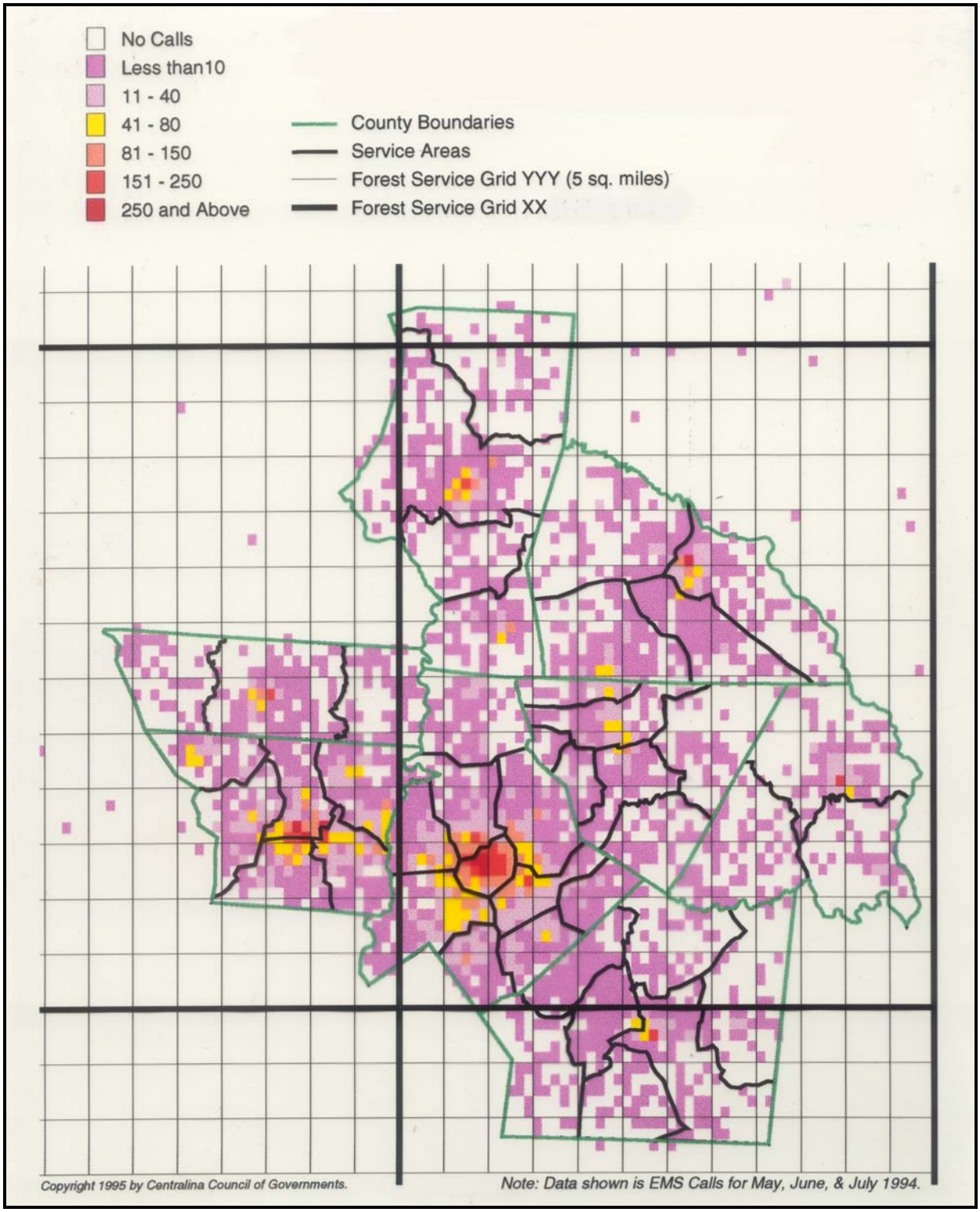
APPENDIX 1. Map of the Region.



APPENDIX 2. Existing Base Locations and Response Districts



APPENDIX 3. Spatial Distribution of Call Demand



APPENDIX 4. Queuing Analysis by District with 90% Unit Availability

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 1

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	0	1	1	0	0	1	1	1	2	2	2	1	1	0	1	1	0	0	1	1	0	1
2	1	0	0	0	0	1	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
3	0	0	1	0	0	0	0	1	2	2	0	1	0	0	2	0	1	0	1	0	1	0	0	1
4	0	1	0	1	1	1	0	1	0	2	1	2	1	1	2	0	1	0	1	1	0	0	0	1
5	0	0	0	0	0	0	0	1	0	1	2	0	1	1	0	1	0	0	0	1	2	0	0	1
6	1	1	1	1	1	1	0	2	0	1	1	0	0	1	1	0	1	0	0	2	0	1	0	1
7	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	1	1	0	0	0	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 2

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	2	3	3	3	2	3	3	2	3	4	3	3	4	4	3	2	3	3	3	3	3	3	2
2	2	3	2	2	2	2	3	3	3	4	4	5	4	4	3	3	3	4	3	3	3	2	3	2
3	3	2	3	2	2	2	2	2	3	4	5	3	3	3	4	4	3	3	4	3	2	2	2	2
4	2	2	3	2	3	2	2	3	3	4	4	5	5	4	4	3	4	3	3	3	3	3	3	2
5	2	2	2	2	2	0	2	2	4	5	4	4	3	2	2	4	4	3	2	2	4	3	3	2
6	2	3	3	3	3	2	3	2	5	4	5	4	5	4	3	3	4	3	3	4	3	3	4	2
7	2	3	2	2	2	0	2	2	2	3	2	4	3	2	5	4	2	3	3	3	3	3	3	3

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 3

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	1	1	0	0	0	0	2	0	1	0	0	1	0	1	1	0	2	2	2	2	1	1
2	1	0	1	0	1	2	0	0	1	0	0	2	0	1	0	0	0	1	0	1	0	2	1	0
3	1	0	0	1	0	0	2	0	0	1	1	0	2	1	0	0	1	1	1	1	1	0	0	1
4	0	0	0	1	1	0	2	1	0	2	0	0	2	0	2	2	1	1	0	0	1	2	0	1
5	0	0	1	0	0	0	0	0	2	0	1	0	0	0	0	1	0	0	2	1	0	2	0	0
6	0	1	0	0	0	0	2	0	1	0	2	0	0	1	2	0	1	2	0	1	2	0	1	1
7	0	0	0	0	0	0	1	0	0	2	0	2	0	0	1	1	0	1	2	0	1	1	2	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 4

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	2	2	0	2	2	2	2	2	2	2	2	2	0	2	2	2	2	0	2	2	2
2	2	0	0	2	0	0	2	3	2	3	4	2	2	0	3	2	3	2	2	2	2	2	2	2
3	2	0	0	0	2	0	0	2	0	3	3	2	0	2	2	2	2	2	2	0	0	2	0	0
4	0	2	2	0	2	0	2	2	2	4	3	3	3	2	2	2	2	2	3	3	3	2	2	2
5	0	2	0	2	0	0	0	2	2	3	3	3	2	2	2	2	2	2	2	0	2	2	0	2
6	2	0	2	2	2	2	2	2	2	3	2	2	2	2	3	2	2	2	2	2	2	2	0	2
7	2	0	0	2	0	0	2	0	0	2	2	2	2	2	2	2	2	2	2	2	0	3	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 5

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	2	0	0	0	1	1	0	0	0	0	0	2	1	2	0	0	2	1	1	1	1	0
2	0	0	0	0	0	1	1	2	2	1	2	0	0	1	2	2	2	2	2	1	1	0	0	0
3	0	0	1	0	1	0	1	2	1	2	1	1	1	0	2	1	0	0	1	0	1	0	0	1
4	0	0	0	0	1	0	0	0	2	1	1	1	1	1	2	0	1	0	2	0	1	0	0	0
5	1	1	0	0	0	0	0	1	2	1	1	1	1	0	0	1	0	1	1	0	0	2	0	1
6	0	0	1	0	0	1	0	2	2	0	1	1	0	0	0	2	0	0	2	0	2	2	1	0
7	0	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 6

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	2	2	2	2	2	2	3	2	3	2	2	2	2	2	2	2	0	2	2	2	0
2	2	2	2	1	2	2	2	2	3	4	4	3	3	3	3	2	2	2	2	2	3	2	2	1
3	2	2	2	2	2	2	0	2	2	4	2	3	2	2	3	3	2	3	2	2	2	2	3	2
4	2	2	1	2	1	2	1	3	3	4	5	3	3	2	3	2	2	2	2	2	2	2	3	2
5	2	0	2	0	2	2	2	2	2	4	3	3	3	3	2	3	2	2	2	3	2	2	0	2
6	2	2	2	2	2	1	2	2	3	3	4	3	3	3	3	3	3	3	2	2	2	2	2	2
7	2	2	0	0	2	2	2	2	2	2	2	2	3	2	3	2	2	1	3	2	3	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 7

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	2	0	0	2	2	1	1	1	2	2	2	2	1	2	2	2	1	2	2	0	2	0
2	2	2	0	0	2	0	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1
3	0	2	1	0	0	2	2	2	2	1	3	1	2	2	1	0	2	2	2	2	0	1	2	2
4	2	2	2	0	1	1	2	2	2	2	2	2	2	1	1	2	2	0	2	1	1	2	2	0
5	1	0	1	0	0	0	2	2	3	1	2	0	2	2	2	0	1	2	2	1	2	1	1	1
6	2	0	0	0	1	0	2	2	0	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2
7	0	0	1	0	2	1	2	2	1	2	2	2	2	2	2	2	2	1	1	2	0	0	1	1

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 8

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	2	0	1	2	1	2	2	1	2	2	2	2	2	2	2	2	2	1	0	2	2	2
2	0	0	1	1	0	2	1	1	2	2	2	2	1	1	2	2	2	2	2	2	0	2	1	0
3	0	1	2	0	0	0	1	2	2	2	2	2	1	2	2	2	2	2	0	2	2	2	0	2
4	0	2	1	1	1	0	1	0	2	2	2	1	2	1	2	2	2	1	1	2	2	2	2	0
5	2	1	1	1	2	2	2	2	2	2	2	0	2	0	2	2	2	0	1	1	2	1	0	2
6	2	1	1	2	1	1	0	2	2	2	2	2	2	0	1	2	2	2	1	2	2	1	2	1
7	1	1	2	2	1	0	1	2	2	2	2	2	2	2	1	0	2	2	0	2	2	2	1	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 9

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	1	0
2	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	0	0	1
3	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	0	0	0	1	0	0	0	0	0
5	0	0	0	0	1	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	1	0	0	0
6	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
7	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 10

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	1	0	2	0	1	1	2	2	2	2	2	2	2	3	2	1	2	2	2	2	2	1	0
2	1	1	0	1	2	0	1	2	4	3	4	4	3	3	4	2	2	2	2	2	2	2	2	0
3	2	2	1	1	2	1	2	2	3	2	3	2	2	3	3	3	2	1	2	1	2	1	2	1
4	2	1	1	2	1	0	2	2	2	2	2	2	3	2	2	3	2	3	2	2	2	2	3	2
5	1	1	1	0	1	2	1	2	3	2	2	3	2	2	3	3	3	2	2	2	2	2	2	1
6	2	0	0	1	0	1	1	2	2	2	3	3	2	2	2	2	2	2	2	2	2	2	2	3
7	2	2	1	1	0	1	2	2	2	2	2	3	2	2	2	3	2	3	2	2	2	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 11

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	0	0	0	0	0	0	1	1	1	0	2	0	1	1	0	0	0	0	0	1	0	0
2	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	0	1	1	0	0	0	0	1
3	0	0	0	1	0	1	0	1	0	0	1	1	1	0	0	1	1	0	1	0	2	0	0	0
4	0	0	1	0	0	0	0	0	0	1	0	0	0	2	0	0	1	0	1	0	0	0	1	0
5	0	1	0	1	0	1	0	1	0	0	0	2	0	0	0	0	2	0	0	0	0	1	1	0
6	0	0	0	0	0	0	1	0	1	0	0	0	2	2	2	0	0	0	0	0	0	2	0	0
7	0	2	1	0	0	2	0	0	0	0	2	0	0	2	1	1	0	0	1	1	0	0	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 12

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	2	0	1	0	1	1	1	1	2	1	2	0	1	1	1	2	1	2	2	2	1	0
2	1	2	0	0	0	2	1	0	0	0	2	1	2	0	1	1	2	2	0	0	0	1	1	1
3	0	0	1	0	2	0	0	0	2	0	2	2	2	2	0	1	1	0	0	0	2	2	0	0
4	0	0	2	2	2	0	0	2	2	2	2	2	2	2	1	1	2	2	2	0	0	0	1	0
5	2	0	0	0	1	0	0	2	2	0	1	2	1	1	1	2	2	0	0	0	0	0	0	0
6	0	0	1	0	2	1	1	2	1	2	1	1	2	2	2	2	0	0	0	2	1	0	0	1
7	2	2	2	0	2	1	0	1	2	0	0	1	1	0	1	2	1	2	0	1	1	0	2	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 13

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	2	2	2	2	2	2	2	3	2	3	3	3	3	3	2	3	2	3	2	3	2
2	3	3	2	3	2	0	3	3	3	3	3	4	4	3	4	4	3	3	2	2	3	3	3	2
3	1	2	2	2	2	3	2	3	3	4	4	4	3	3	4	3	3	3	3	2	2	2	3	3
4	3	2	2	1	2	2	2	4	3	4	3	5	4	4	3	4	3	2	3	2	2	3	3	2
5	3	2	3	2	2	2	3	3	4	5	4	4	3	4	3	3	3	3	3	2	3	2	3	3
6	3	3	3	2	3	2	3	3	3	4	3	5	5	3	4	3	3	2	1	3	2	3	4	2
7	2	2	2	3	1	3	3	3	3	3	2	3	2	3	3	2	3	3	2	2	2	3	2	3

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 14

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	1	2	1	2	0	1	0	2	2	2	2	0	1	0	2	2	2	2	3	2	2	2	2
2	0	2	2	1	1	0	2	2	0	2	2	2	1	2	2	2	2	0	2	1	1	2	0	0
3	0	0	0	1	2	0	2	2	0	2	1	1	1	2	2	1	1	2	0	0	1	1	2	1
4	2	2	0	1	0	0	1	1	1	2	0	1	2	2	0	0	2	1	1	2	2	1	2	1
5	1	0	2	1	1	1	2	0	2	1	1	2	1	1	1	0	2	1	2	2	2	2	1	0
6	0	2	1	1	1	0	1	2	0	1	2	1	0	2	1	0	2	2	1	2	2	1	2	1
7	1	2	1	1	1	0	2	2	1	2	1	2	2	2	1	2	2	2	1	0	1	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 15

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	3	2	1	2	2	0	2	2	2	2	2	3	2	2	2	3	2	1	2	3	1	2	2
2	2	2	2	1	2	2	2	3	2	3	2	3	2	2	3	3	2	3	3	2	3	2	1	2
3	2	2	2	1	2	0	2	2	2	3	3	2	2	3	2	2	3	2	2	1	2	2	2	2
4	0	2	1	2	2	1	2	2	3	2	2	2	3	3	3	2	3	2	2	2	2	2	2	2
5	2	1	3	2	2	2	2	2	3	2	2	2	3	3	2	3	2	2	2	3	2	2	3	2
6	0	1	1	1	1	2	2	2	2	2	2	2	3	1	2	3	2	2	2	2	2	2	2	2
7	2	2	2	2	2	1	2	2	2	3	2	2	3	2	2	2	2	2	3	3	3	2	3	1

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 16

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	2	4	3	2	3	3	2	2	2	3	3	2	3	2	2	3	3	2	3	2	3	3	2
2	3	2	3	2	2	2	2	3	3	3	2	2	2	3	4	3	3	2	3	2	3	3	2	2
3	3	2	2	2	2	2	2	2	3	3	2	2	3	2	3	3	2	4	2	2	1	2	2	2
4	2	2	1	0	1	3	2	2	2	2	2	3	2	3	2	2	2	2	3	2	3	2	2	2
5	2	2	2	2	2	2	2	2	3	3	3	3	2	3	3	4	3	3	2	2	2	3	3	2
6	3	2	2	2	2	2	3	2	3	3	2	2	4	2	2	3	3	3	3	2	2	3	2	3
7	2	2	2	2	2	2	2	2	2	2	3	3	3	4	2	4	2	2	3	2	2	3	3	3

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 17

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	2	0	1	2	0	0	0	2	2	2	2	1	1	2	2	2	2	0	2	1	2	0
2	2	0	1	0	0	2	1	2	2	2	2	1	2	2	1	2	1	0	2	1	2	2	1	0
3	2	1	2	0	0	1	0	3	1	2	1	2	0	2	1	1	2	1	2	1	2	1	0	2
4	0	2	1	0	0	0	0	2	2	2	2	2	2	2	1	0	1	0	2	0	2	0	2	1
5	2	0	1	0	2	1	0	2	1	2	2	1	0	2	3	2	2	0	2	2	0	0	1	1
6	2	1	2	2	2	2	1	1	2	1	2	1	1	0	1	2	2	2	1	2	1	2	2	1
7	1	0	1	2	0	1	1	2	2	2	1	1	1	2	2	1	2	2	2	2	1	1	1	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 18

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	0	0	0	0	1	0	1	1	2	1	2	2	2	2	2	2	2	0	1	2	2	2
2	1	1	1	0	1	1	0	1	2	2	1	1	0	1	2	2	2	2	1	1	2	2	2	0
3	2	0	0	1	0	1	0	2	2	0	0	2	2	1	2	0	1	1	2	2	2	0	1	0
4	2	1	1	2	2	1	0	0	1	1	2	2	2	2	2	2	2	1	1	1	2	1	2	1
5	1	1	0	1	0	0	1	2	1	1	1	2	2	2	2	2	2	2	2	2	2	0	1	2
6	2	1	1	0	1	0	0	0	0	2	1	0	2	0	0	1	0	1	2	2	1	2	1	1
7	2	2	0	2	0	0	0	0	0	2	0	2	2	0	2	2	1	1	2	2	1	2	1	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 19

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	0	2	2	1	0	1	1	1	2	1	2	2	2	2	2	1	0	2	1	2	2	2
2	2	0	1	1	1	1	1	2	1	1	1	1	2	2	2	1	2	1	2	2	2	1	2	2
3	2	2	1	2	1	0	0	2	0	1	2	2	2	2	2	2	2	2	1	2	1	1	2	2
4	2	1	1	1	0	1	2	2	2	1	2	2	2	2	2	2	2	2	1	2	2	1	2	1
5	1	1	1	0	2	1	1	1	1	2	2	1	2	1	1	1	2	1	2	2	2	1	0	2
6	2	1	2	1	1	0	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
7	1	2	1	1	1	0	0	0	2	2	1	2	2	1	2	2	1	2	1	1	2	1	2	1

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 20

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	3	3	2	2	2	2	2	2	2	2	3	2	2	3	2	2	2	3	3	2	2	2	2
2	2	2	2	2	1	2	2	2	2	3	2	3	3	3	2	3	3	2	3	3	3	2	2	2
3	3	2	1	2	2	2	2	2	1	2	3	3	2	3	3	3	3	2	2	2	2	3	2	3
4	2	2	2	2	2	1	2	3	3	2	2	3	3	2	3	3	3	3	3	2	3	2	2	2
5	2	2	1	2	2	1	2	2	3	2	2	2	3	4	2	2	3	3	3	2	2	2	2	2
6	2	2	2	2	2	1	2	2	3	2	2	2	3	3	3	2	3	3	3	2	3	3	2	3
7	2	3	2	2	2	2	2	2	2	2	3	3	4	2	2	2	2	3	2	2	3	3	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 21

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	1	0	0	0	0	2	2	2	0	2	2	2	2	1	0	2	2	0	2	1	2
2	0	1	1	1	0	0	1	2	1	2	1	2	0	1	0	2	2	2	0	2	0	1	1	2
3	1	1	2	0	0	1	1	0	0	0	1	1	2	2	1	2	0	0	1	2	2	0	1	2
4	1	0	0	1	0	1	0	0	2	2	1	0	0	2	2	1	2	1	0	0	0	1	1	0
5	0	0	0	0	0	1	1	0	1	2	0	2	2	0	1	0	2	2	2	2	1	2	1	1
6	1	0	1	0	0	0	0	1	0	0	2	2	2	2	2	2	1	2	2	1	1	2	0	1
7	1	1	1	1	0	1	0	1	2	2	2	1	1	1	0	2	0	0	1	2	2	2	1	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 22

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	0	2	1	2	0	2	1	1	1	2	1	2	2	2	2	2	2	1	3	2	2	2	2
2	2	2	0	0	0	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
3	2	1	0	0	0	0	0	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2
4	2	2	2	1	0	1	1	0	2	2	2	1	2	2	1	2	2	2	2	2	1	0	0	2
5	2	2	0	1	0	2	1	2	2	2	2	2	1	2	2	2	0	2	2	2	2	0	1	1
6	2	1	2	0	1	0	2	1	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2
7	2	1	1	2	2	1	2	0	1	2	2	2	2	2	0	2	2	2	2	2	2	1	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 23

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	1	1	2	1	1	0	2	1	2	2	2	2	2	2	2	2	2	3	3	2	2	2
2	2	2	2	0	0	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	0
3	1	0	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	0	0
4	2	2	0	1	0	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2
5	2	1	2	2	0	1	0	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2
6	1	1	2	0	0	2	0	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1
7	1	2	0	1	0	2	0	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 24

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	2	2	3	2	2	2	2	2	2	2	2	2	3	2	2	3	3	2	2	3	2	1	2
2	2	2	2	2	1	0	2	3	1	2	2	2	3	2	2	2	2	2	3	2	2	2	2	2
3	2	2	2	1	1	2	2	1	2	2	2	3	2	2	2	2	2	3	2	2	2	3	2	2
4	2	2	1	2	1	2	1	2	2	2	3	3	3	2	2	2	3	2	2	3	2	2	2	2
5	2	2	2	2	0	2	1	2	2	2	2	2	2	2	2	3	2	3	3	3	2	3	2	2
6	2	1	2	2	0	1	2	2	2	2	2	3	2	3	2	2	2	2	2	2	2	2	2	2
7	3	2	2	3	1	2	2	2	1	2	2	3	3	3	3	2	2	3	2	3	3	3	3	3

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 25

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	2	1	2	1	1	0	2	1	2	2	1	2	2	2	2	2	3	2	3	2	2
2	2	1	1	2	1	1	1	2	1	2	2	2	1	2	2	3	2	2	2	2	2	2	2	2
3	0	0	2	2	1	1	1	1	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	2
4	2	0	1	1	2	2	1	2	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	2
5	2	2	2	1	1	1	1	2	2	2	2	2	1	1	2	1	2	2	1	2	2	2	2	2
6	2	0	2	2	1	2	1	2	2	3	2	1	2	2	1	2	3	2	2	2	2	1	2	2
7	2	2	2	2	2	1	1	1	0	0	2	2	2	2	2	2	2	2	2	2	2	3	1	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 26

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	2	0	2	1	1	2	2	2	2	2	2	2	1	2	2	2	3	2	2	2	2
2	2	2	1	2	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	0	2	2	2	2
3	2	2	1	2	1	1	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1
4	2	2	1	2	2	1	2	1	1	2	2	2	2	1	2	2	1	1	2	2	1	1	2	2
5	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
6	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	1
7	2	2	2	2	0	1	0	1	2	2	0	2	2	2	2	1	2	2	1	2	2	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 27

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	5	4	4	4	2	2	3	3	3	3	3	4	4	3	4	4	4	4	5	4	5	4	5	4
2	3	3	3	3	3	3	3	3	4	2	3	4	4	4	4	5	4	4	5	5	4	4	5	4
3	4	3	2	3	3	2	2	4	4	3	4	4	5	5	5	5	4	5	4	4	4	5	4	4
4	3	3	3	3	2	2	3	3	4	5	4	4	4	4	4	4	4	5	4	4	5	3	5	4
5	4	2	3	3	3	3	3	3	4	5	4	4	4	4	4	4	4	4	4	4	5	5	4	4
6	4	3	4	3	3	2	3	3	4	3	4	4	4	4	5	4	5	4	4	5	5	4	4	5
7	4	4	4	3	3	3	2	2	3	4	4	3	4	4	4	4	5	4	4	5	4	6	5	4

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 29

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2	2	2	2	2
2	2	2	1	1	2	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1
3	2	2	1	0	0	0	2	2	2	2	2	2	2	1	2	2	2	2	2	3	2	2	2	2
4	2	2	2	1	1	0	2	0	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
5	2	1	2	0	1	1	2	1	2	2	2	2	1	2	2	0	2	2	2	2	2	2	2	2
6	2	1	2	1	0	2	2	1	2	2	2	2	2	2	2	2	3	2	3	1	2	3	2	1
7	2	1	2	0	2	2	2	2	1	2	2	0	1	2	2	2	2	2	2	2	2	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 30

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	2	0	1	1	1	2	1
2	0	0	0	0	0	1	0	0	0	2	0	0	2	1	2	1	2	0	2	1	2	0	0	0
3	2	1	0	0	0	0	0	0	1	1	2	0	0	1	0	2	0	1	0	0	1	0	1	1
4	1	0	0	0	0	0	0	1	1	2	2	2	1	0	0	1	1	1	0	0	0	2	1	0
5	1	0	0	0	0	0	0	1	2	0	2	2	2	1	1	2	0	0	1	0	0	1	0	0
6	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	1	1	2	2	1	1	1
7	0	0	0	1	0	2	0	1	0	1	2	1	1	0	0	0	0	0	1	1	2	0	1	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 31

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	2	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	0	0
2	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0
3	1	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	1	1	1	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
6	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0
7	1	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 32

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	1	2	1	2	0	0	1	1	2	2	2	2	1	2	2	2	2	2	2	1	2
2	2	2	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0
3	2	2	1	2	2	0	1	0	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	1
4	1	0	1	0	0	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2	1
5	2	1	1	0	1	1	2	2	2	0	2	2	0	2	1	1	2	2	2	2	1	2	2	1
6	1	2	0	2	0	1	2	1	2	2	2	2	2	1	2	2	2	1	2	2	1	2	2	1
7	0	2	0	0	1	1	1	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	1	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 33

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	2	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	1	0	1	0	0
2	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	0	0	1	0	0	0
3	1	0	0	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	1	1	1	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
6	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0
7	1	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	1	0	1	1	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 34

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	2	1	0	0	0	1	0	1	2	2	2	1	1	2	2	1	2	2	2	2	2	2	1
2	0	1	0	0	0	0	0	2	0	2	2	1	1	0	0	2	1	0	2	1	0	1	2	2
3	0	1	1	0	0	0	2	2	1	0	1	0	0	2	0	2	2	2	2	0	1	0	0	0
4	0	0	1	0	1	0	1	0	2	1	2	2	0	0	1	1	2	0	0	2	2	1	0	0
5	0	2	0	0	0	1	2	1	1	0	1	1	1	1	1	2	2	2	1	2	0	1	1	0
6	0	1	0	0	1	0	2	0	0	2	2	1	1	0	2	1	1	0	0	0	0	1	0	1
7	1	0	1	1	0	0	1	2	0	0	2	1	2	1	2	0	2	2	2	1	0	0	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 35

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	0	1	2	2	2	0	2	2	1	1	1	0	2	2	2	0	1	2	2	2	1	0	1
2	2	2	1	1	0	0	2	2	0	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
3	2	1	0	1	0	0	1	1	2	2	2	2	0	2	2	2	2	2	2	2	0	1	2	1
4	2	1	1	2	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	0	1	2	2	1
5	3	1	0	2	0	0	1	2	1	2	2	2	0	2	2	2	1	1	2	2	2	1	1	1
6	2	0	0	0	1	1	2	1	1	2	2	2	2	2	2	2	2	0	2	1	2	2	2	1
7	2	1	0	1	0	2	0	1	2	2	2	2	0	1	2	1	2	1	2	2	2	2	1	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 36

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	2	1	2	2	2	2	2	0	2	0
2	2	0	0	0	0	1	1	0	2	2	0	1	2	2	2	0	1	1	0	0	0	1	2	1
3	2	0	0	0	2	1	0	0	0	2	1	1	2	2	1	2	1	0	0	1	0	0	2	2
4	2	0	0	1	0	0	0	0	2	0	0	1	0	0	1	0	1	2	0	2	0	1	2	0
5	0	0	1	0	0	1	0	1	0	0	2	1	0	2	0	2	1	1	1	2	1	1	2	0
6	1	1	0	1	0	1	0	0	1	1	2	1	1	0	2	1	0	2	2	2	1	0	2	1
7	0	1	0	1	0	0	1	2	0	0	1	2	2	1	2	2	1	0	2	0	0	2	1	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 37

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	1	2	0	1	0	0	0
2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0	0	1	2	0
3	0	0	0	0	1	0	0	1	1	1	0	1	0	2	0	2	0	0	0	0	1	1	0	0
4	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	1
5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	0	1	0	0
6	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	2	1	0	0	1	0	1	1
7	1	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	1	1	1	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 38

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1
2	0	1	0	0	0	1	0	1	0	0	0	1	1	1	1	0	1	1	0	1	0	0	1	0
3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0	1	0	0	1	1	0	0	1	0
5	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0
6	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0
7	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 39

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	0	0	0	1	0	0	0	0	0	0	1	2	0	0	2	0	1	1	1	0	0	1	0
2	0	0	0	0	0	1	0	0	1	0	1	1	2	1	2	2	2	1	0	1	0	1	2	0
3	1	1	0	0	1	2	0	2	1	0	0	1	2	1	1	1	2	0	0	0	0	0	0	0
4	1	2	0	0	0	0	0	2	1	0	0	1	2	1	1	0	0	1	0	1	2	0	0	2
5	1	0	0	0	0	0	2	0	0	2	0	1	0	1	2	0	0	1	2	0	1	0	1	1
6	0	0	0	0	0	0	0	0	1	0	1	1	0	1	1	0	0	2	0	1	2	0	0	2
7	0	0	0	2	0	0	1	0	1	1	1	0	1	0	1	2	0	0	0	1	0	2	1	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 40

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	2	2	2	0	2	1	1	2	0	1	2	2	1	2	2	2	2	2	2	2	2	2
2	2	2	1	0	2	2	0	2	2	2	2	0	3	2	3	2	2	3	2	2	2	2	2	2
3	1	1	2	1	1	2	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	1	2	0
4	2	0	2	0	1	1	2	2	2	2	2	2	2	2	2	2	2	3	1	2	2	2	2	2
5	2	2	0	2	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	0	2	2	2	2
6	2	2	1	1	2	1	0	2	2	1	3	0	2	2	2	2	2	2	1	2	2	1	1	1
7	2	0	2	1	2	0	2	2	1	0	2	2	2	2	2	2	2	2	1	0	2	2	2	2

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 41

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	2	0	0	1	0	0	1	0	1	0	0	0	0	0	2	0	2	2	0	0	0	2	0
2	0	2	0	0	0	1	0	2	0	0	1	0	1	2	1	0	0	0	0	1	0	2	2	1
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	0	1	1	0
4	0	0	0	0	0	0	2	0	2	2	0	2	1	2	2	2	2	0	2	2	0	1	0	2
5	2	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	1	2	2	2	0	0	0	2
6	0	0	1	0	0	2	0	2	0	0	0	0	1	2	0	0	2	0	0	0	0	1	0	2
7	2	2	0	0	0	0	1	2	1	0	0	0	0	2	0	1	2	1	1	2	1	1	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 42

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	2	2	1	1	0	1
2	0	0	0	0	0	0	0	0	2	1	0	0	1	1	1	0	0	1	2	1	1	1	1	0
3	0	1	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	2	1	0	0	0	0	1
4	0	0	0	0	0	1	0	0	0	1	1	0	1	0	0	1	1	0	2	0	0	0	0	0
5	0	0	1	0	1	0	2	0	0	1	1	2	0	0	1	1	0	1	0	0	1	0	0	0
6	0	0	0	2	0	1	0	0	0	0	2	1	0	1	0	0	0	2	2	0	1	0	2	2
7	0	0	0	0	1	0	0	0	0	1	0	1	0	1	0	0	1	1	2	0	0	1	0	0

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 43

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	2	1	0	0	0	0	0	0	2	1	1	0	0	0	1	2	1	1	1	2	2	2	0
2	0	0	0	2	0	0	1	1	1	1	2	1	2	0	1	2	0	2	0	1	1	2	2	2
3	1	0	0	0	0	1	0	2	2	0	1	1	1	0	1	2	2	1	1	0	0	0	1	1
4	0	0	1	0	0	2	2	0	2	1	1	0	0	0	1	1	0	1	1	1	0	1	2	0
5	1	1	0	0	1	2	1	1	1	0	2	2	1	2	2	2	2	2	2	2	1	1	0	2
6	0	0	0	0	2	0	1	2	2	1	1	0	2	2	1	2	2	2	1	2	0	0	2	2
7	0	2	0	1	1	0	1	2	2	1	2	0	2	2	2	2	2	2	2	2	1	1	0	1

REGIONAL EMS SYSTEM STAFFING PATTERN ANALYSIS
M/M/N QUEUEING SYSTEM MIN. UNIT AVAILABILITY = .90

DISTRICT 44

DAY/HR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1	0	2	0	0	1	0	0	0	2	2	0	1	2	2	0	2	2	2	1	0	2	2	2
2	2	0	1	0	0	0	1	2	0	2	0	2	2	2	1	1	2	2	2	2	2	2	1	1
3	1	1	2	1	0	0	1	1	2	1	0	0	2	1	2	1	1	2	2	2	2	0	2	0
4	1	2	0	1	0	0	1	0	0	2	2	2	1	0	2	2	2	2	2	2	2	1	2	0
5	2	2	0	1	0	1	0	1	2	2	1	1	2	1	0	0	2	1	2	1	1	1	1	1
6	1	1	0	1	1	0	0	0	1	0	0	1	2	2	2	2	2	1	2	2	1	2	0	2
7	0	2	2	0	1	0	0	1	0	2	1	2	2	2	2	2	1	1	1	0	1	0	1	2

Decision Sheet

Charge per call $_____

Mileage charge $_____

Will you allow response across county lines? ¡ YES NO ¡

For each response district, indicate the number of ambulances you will operate, the hours of operation for each, the type of ambulance (medic or transport) and the level of certification of the crew for each.

District	Hours of Operation	Certification Level of Crew	Type of Ambulance
Sample district 1	(2) 24 hour x 7 days (1) 7a – 7p M-F (1) 8a – 5p M-F	1 EMT-P, 1 EMT-I 1 EMT-P, 1 EMT-I 2 EMT-I	Transport Transport BLS transport
Sample District 2	(1) 24 hour x 7 days	1 EMT-P	Medic
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