



AMERICAN MEDICAL RESPONSE

January 26, 2011

**VIA HAND DELIVERY  
AND EMAIL**

Ms. Amanda Taylor  
Procurement Coordinator  
Sumter County  
7375 Powell Road  
Wildwood, Florida 34785

**Re: Letter of Protest  
January 14, 2011 Selection Committee Meeting  
Request For Proposal - RFP #172-0-2010/AT  
Emergency Ambulance Services**

Dear Ms. Taylor:

Please accept this correspondence as notice that LifeFleet Southeast, Inc., d/b/a American Medical Response ("AMR"), in general accordance with the procedures outlined in the subject Request for Proposal ("RFP") #172-0-2010/AT and the Sumter County Code (Purchasing Policies and Procedures), hereby protests the Sumter County Selection Committee's (the "Committee") decision during its meeting on January 14, 2011, to award the subject RFP to Rural/Metro Corporation of Florida ("Rural/Metro").

AMR alleges fraud by its competitor Rural/Metro in its proposal compels Sumter County to either disqualify Rural/Metro or rescore the proposals to the RFP. It is a common-held belief that proposers on public contracts have an obligation to present information to counties and cities in a manner that upholds the integrity of the process. When a proposer violates that obligation, the whole process is called into question, sometimes without any fault of the public entity. That is precisely what has happened here. Rural/Metro has unlawfully plagiarized copyrighted portions of AMR's previous bid in Orlando, Florida and presented them to Sumter County as if they were its own work product. In so doing, Rural/Metro has tainted the procurement process. Below, AMR raises two (2) points of protest on this issue for your review. We respectfully request that after review of our protest that you either disqualify Rural/Metro's proposal or reassess the scores to take into account this new information.

1

LifeFleet Southeast, Inc. d/b/a American Medical Response  
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813.885.3955 ext 237  
Tom\_diaz@amr-ems.net



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### A. Procedural Issues

The first point of protest is that, based on a review of the Rural/Metro Proposal for Sumter County dated December 3, 2010, we believe that there was an express violation of Sections 101 and 201 of the Sumter County Code (Purchasing Policies and Procedures). Section 101 requires the Financial Services Department to promote “fair and open competition in an effort to reduce the appearance or opportunity for favoritism or impropriety” to “inspire public confidence” that “contracts are awarded equitably and economically.” Further, Section 101 outlines the County’s system of uniform procedures and requirements that are “essential for effective and ethical procurement” by the County.

Section 201 provides that the Financial Services Department “strives to maintain high standards of ethics and conduct” and that purchasing officials, both in fact and appearance, shall “preserve the integrity of the competitive process” and “ensure there is a public confidence” that “contracts are awarded equitably and economically.” Section 202, by reference, also incorporates the requirements of *Florida Statutes* Chapter 112, Part III, Code of Ethics for Public Officers and Employees. Section 112.3213, *Florida Statutes*, illustrates the Legislature’s intent in promulgating this statutory code of ethics and finding “that preservation of the integrity of the governmental decision making process is essential to the continued functioning of open government.” Our primary protest is that **by expressly violating the terms of the RFP certification, Rural/Metro expressly violated both the requirements and the intent of the Sumter County Code, the Florida Statutes and relevant Florida case law.**

Applicable Florida case law “recognizes wider discretion afforded counties and cities in exercising discretion in accepting or rejecting responses to RFPs...” *Emerald Correction Management v. Bay County Bd. of County Commsrs.*, 955 So. 2d 647, 650-51 (Fla. 1st DCA 2007). However, this wide discretion is not recognized when there are instances of “fraud, collusion or other misconduct.” *See Dedmond v. Escambia County*, 244 So. 2d 758, 761 (Fla. 1st DCA 1971) (First DCA held that commissioners had authority to cancel bids when there is fraud, collusion or other misconduct by the bidder). This is because “fair dealing is required by all parties and public officials should set the example.” *See id.*



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This obligation that there is fair dealings in the process is codified in Sumter County's RFP. Each bidder is required to acknowledge that the bid is not fraudulent, among other things. Listed below is verbatim text from the RFP regarding the certification to be included:

*"I certify that this quote is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting an RFP for the same material, supplies, equipment or services and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this RFP and certify that I am authorized to sign this response and that the offer is in compliance with all requirements of the RFP, including but not limited to certification requirements. In conducting offers with an agency for Sumter County Board of County Commissioners (BOCC), respondent agrees that if this proposal is accepted, the respondent will convey, sell, assign, or transfer to the Sumter County BOCC all rights, title and interest in and to all causes of action it may now or hereafter acquire under the anti-trust laws of the United States for price fixing relating to the particular commodities or services purchased or acquired by the COUNTY. At the Sumter County BOCC discretion, such assignment shall be made and become effective at the time the purchasing agency renders final payment to the respondent."*

(Emphasis added).

To this point, AMR alleges the following:

1. The Rural/Metro Proposal failed to comply and, further, expressly violated the verbatim text of the RFP certification by misrepresenting that sections of its Proposal were its own, when, as shown below, they were copied from AMR's City of Orlando proposal from April 2010;
2. These actions by Rural/Metro, in turn, expressly violated the requirements and intent of Sections 101 and 201 of the Sumter County Code (Purchasing Policies and Procedures); and
3. Additionally, in doing so, Rural/Metro violated the Legislature's intent in promulgating Section 112.3213, Florida Statutes, which is incorporated into the Sumter County Code (Purchasing Policies and Procedures) by reference, and applicable Florida case law.



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Without a doubt, Rural/Metro copied and submitted, representing as its own, sections of AMR's proposal to the City of Orlando dated April 1, 2010. This proposal to the City of Orlando was proprietary work product of AMR, for which it engaged the expertise of a professional consultant (Dr. Jeff Goldberg) and paid an amount equal to \$17,000.00 to that consultant to produce. This was verified by a review of the Rural/Metro Proposal.<sup>1</sup> To determine the Rural/Metro Proposal is, in part, a copy of a prior RFP proposal made by AMR, we urge you to consider and compare the following excerpts reproduced below:

### **Rural/Metro Capacity Planning (Demand Analysis)**

Capacity planning is used to determine the number of ambulances necessary to staff each hour-of-day and day-of-week. Rural/Metro has incorporated into its method advanced mathematical principles and methods to more precisely determine appropriate unit staffing levels. These methods were developed with assistance of Dr. Jeff Goldberg, Dean of the School of Industrial Engineering at the University of Arizona in Tucson, AZ. Dr. Goldberg is a PhD Operations Researcher who has been advancing EMS deployment methods and modeling techniques for greater than 15 years.

### **AMR Capacity Planning (Demand Analysis)**

Capacity Planning is used to determine the number of ambulances necessary to staff each hour-of-day and day-of-week. Orlando EMS has incorporated into its template advanced mathematical principles and methods to more precisely determine appropriate unit staffing levels. These methods were developed with assistance from Dr. Jeff Goldberg from the University of Arizona in Tucson, AZ.

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<sup>1</sup> It is worth noting that David Lindberg is cited in Rural/Metro's proposal to Sumter County, and is also cited in the AMR proposal to the City of Orlando as having worked with Dr. Goldberg for close to 10 years to perfect this capacity planning model. Mr. Lindberg is no longer employed by AMR. Following the completion of the AMR proposal to the City of Orlando, Mr. Lindberg left AMR and is presently employed by Rural/Metro. While AMR does not wish to unnecessarily involve Sumter County in a legal issue outside the context of this RFP, we believed it was essential background information for you to understand just how Rural/Metro came into possession of AMR's copyrighted materials. Simply stated, the copyrighted information is not the property of Rural/Metro and AMR will seek all legal means to protect it.



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Dr. Goldberg is a PhD Operations Researcher who has been advancing EMS deployment methods and modeling techniques for greater than 15 years.

### **Rural/Metro Traditional Demand Calculations**

To create the traditional demand calculations, Rural/Metro used 20 weeks (from 5/14/2010 to 9/30/2010) of incident data obtained from Lake/Sumter EMS to calculate demand by hour-of-day and day-of-week (168 hours). An example of these calculations for Mondays is included below:

### **AMR Traditional Demand Calculations**

To create the traditional demand calculations, we utilize the most recent 20 weeks of incident data to calculate demand by hour-of-day and day-of-week (168 hours). An example of these calculations for Districts 1 – 4 on Monday's can be found on the following page.

### **Rural/Metro Brief Explanation of Terms**

**Max** — This is the maximum number of requests for service that came in over each of the 20-week periods.

**STDEV** — This is the standard deviation of the data over the 20-week period.

**Avg. Demand** — This is the average of call demand over the 20-week period

**Avg. High** — The Average High is a traditional demand calculation developed by Jack Stout. One would take the maximum value for the first 5 weeks, the second 5 weeks, the third 5 weeks and the last 5 weeks, sum these values and divide them by 4. This would provide a conservative estimate of the 75th percentile.

### **AMR Definitions of Terms**

**Max** – This is the maximum number of requests for service that came in over each of the 20 week periods.

**STDEV** – This is the standard deviation of the data over the 20 week period.

**Avg. Demand** – This is the average of call demand over the 20 week period



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Avg. High – The Average High is a traditional demand calculation developed by Jack Stout. One would take the maximum value for the 1st. 5 weeks, then the 2nd. 5 weeks, the 3rd. 5 weeks and then the last 5 weeks, sum these values and divide them by 4. This would provide a conservative estimate of the 75th percentile.

Copies of key documentation referenced above are attached.

AMR further alleges the following:

1. Rural/Metro may have violated applicable copyright laws by copying and submitting, as its own, sections from AMR's City of Orlando proposal from April 2010, without the prior written consent of AMR; and
2. Additionally, Rural/Metro may have violated Florida's Deceptive and Unfair Trade Practices Act, Section 501.201, *Florida Statutes*, by copying and submitting sections of AMR's City of Orlando proposal produced, owned and paid for by AMR, without the payment of any consideration to AMR, and representing it as its own in this RFP.

### **B. Committee Errors**

As an alternative to the first point of protest set forth above, AMR hereby contends that, notwithstanding the protest described above, by selecting a firm that has failed to comply with and expressly violated both the requirements and the intent of the Sumter County Code (Purchasing Policies and Procedures) for selection, the Committee, and by its association, the County, has, through its actions, erroneously put itself in the position of not meeting its own express goals (as described in the County's Purchasing Policies and Procedures) of *"striv[ing] to maintain high standards of ethics and conduct" and, both in fact and appearance, "preserve the integrity of the competitive process" and "ensure there is a public confidence" that "contracts are awarded equitably and economically."*

By allowing Rural/Metro to revise its Proposal to provide dispatch in Sumter County rather than dispatch in Orlando as originally proposed, and allowing Rural/Metro to copy and submit, claiming as its own, sections of AMR's City of Orlando proposal from April 2010, the Committee may have tainted the RFP scoring process, violating Florida law that prohibits favoritism in public procurements. *See Harris v. Sch. Bd.*, 921 So. 2d 725 (Fla. Dist. Ct. App. 1<sup>st</sup> Dist. 2006). Under Florida public procurement law, a public body's exercise of its discretion in



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evaluating proposals, even if erroneous, is not interfered with or disturbed by the courts without a showing of dishonesty, illegality, fraud, oppression or misconduct. *See Sutron Corp. v. Lake County Water Authority*, 870 So. 2d 930 (Fla. App. 5<sup>th</sup> Dist. 2004); *see also Central Florida Equipment Rentals of Dade County, Inc. v. Lowell Dunn Co.*, 586 So. 2d 1171 (Fla. App. 3d Dist. 1991). As shown herein above, given the facts and circumstances of this instance, further review and action on the RFP by the County Administrator and the Board is merited. Our secondary protest is that **by selecting a firm that has failed to comply and expressly violated both the requirements and the intent of the Sumter County Code, the Florida Statutes and relevant Florida case law, the Committee may have tainted the RFP scoring process, violating Florida law that prohibits favoritism in public procurements.**

Now more than ever, during times of such harsh economic conditions and a heightened sense of public cynicism, AMR believes that the County should reconsider its decision to award a contract to a firm that, through its own actions, is utilizing another team's playbook and claiming it as its own without providing any evidence of its ability to execute the plays. By eliminating the firm that both met the technical and ethical requirements in competing for the contract and, additionally, crafted the playbook in question, the County has not given itself the best opportunity to get the best value for the requested scope of services in this RFP and has lost an opportunity to ensure that its contracts are awarded both equitably and economically.

### C. Recommended Remedies

AMR recommends that the evaluation and scoring of the Committee provided for at its meeting on January 14, 2011, be reassessed in light of the additional information set forth herein and that the Rural/Metro Proposal be disqualified or dismissed for its failure to comply with the express technical and ethical requirements of the RFP.

Alternatively, as part of the Committee's re-evaluation, AMR recommends that the Rural/Metro Proposal be scored consistent with the Committee's ethical requirements and procedures. By scoring all proposal elements based on each being the sole work product of the proposer, AMR recommends that it receive full credit for Approach to System Designs, while the Rural/Metro RFP be re-scored and ranked accordingly.



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#### D. Conclusion

In conclusion, for the reasons more particularly set forth above, AMR hereby protests the Committee's scoring of the RFP responses and its subsequent decision during its meeting on January 14, 2011, to award the RFP to Rural/Metro and respectfully requests that the subject proposals be re-evaluated to provide for disqualification or re-scoring as outlined herein. We believe that we have demonstrated that if the Committee had complied with the express terms of the RFP, AMR would have rightfully been awarded this RFP. AMR appreciates the opportunity to submit this Letter of Protest to the Sumter County Purchasing Department, and the Board, and we look forward to your response. If you should have any questions or comments, please do not hesitate to contact the undersigned at 813-885-3955 extension 237.

Thank you for your consideration.

Sincerely,

**LifeFleet Southeast, Inc.,  
d/b/a American Medical Response**

Tomas Diaz  
General Manager

Attachments: Exhibit 1, Excerpts from Rural/Metro Proposal for Sumter Co., dated Dec. 3, 2010  
Exhibit 2, Excerpts from AMR Proposal for City of Orlando, dated April 1, 2010  
Exhibit 3, Copy of Dr. Goldberg's Invoice and Check No. 10549872 for \$17,000.00

cc: Bradley Arnold, County Administrator (via hand delivery w/enc.)  
Art Bisner, County Financial Services Manager (via hand delivery w/enc.)  
Christopher Carmody, Esq., GrayRobinson, P.A.  
Jason Searl, Esq., GrayRobinson, P.A.



Amanda Taylor  
Procurement Coordinator  
Sumter County Board of County Commissioners  
Financial Services Department  
7375 Powell Road  
Wildwood, FL 34785

December 3, 2010

Ms. Taylor / Selection Committee:

Rural/Metro Corporation of Florida is proud and privileged to submit our response to the Request for Proposals for Sumter County Emergency Ambulance Services (RFP # 172-0-2010/AT). In submitting this proposal, we affirm our understanding of and intention to provide, without exception, the Scope of Services as detailed in the Board of Sumter County Commissioners' RFP. Rural/Metro acknowledges receipt of Addenda numbers 1-3.

The RFP established an excellent set of expectations for services to be provided to Sumter County's residents and visitors. Our proposal meets or exceeds every requirement, and we look forward to the opportunity to establish a truly integrated and transparent partnership with the County.

Rural/Metro provides ambulance transportation services in more than 400 communities throughout the country. In Florida, we have served the City of Orlando for nearly 30 years, where we earned the distinction of becoming the state's first ambulance service to receive accreditation by the Commission on the Accreditation of Ambulance Services (CAAS). We also provide services within the counties of Seminole and Osceola.

Our unique history, knowledge, relationships and operational experience in Central Florida lay the strongest foundation for providing the seamless delivery of world-class emergency medical services in Sumter County. We believe Rural/Metro's unparalleled

9221 E. Via de Ventura Scottsdale, Arizona 85258  
Phone (480) 606-3886 (800) 352-2309

Exhibit 1

commitment to customizing EMS design solutions in partnership with local EMS stakeholders proves our greatest asset. We view our local government and fire first responder colleagues as trusted partners, with transparency and accountability the cornerstones of these relationships. We not only deliver vital emergency medical services to our community, but we partner with system stakeholders to become an integral part of the total health care delivery system.

Once again, thank you for the opportunity to submit this proposal. We look forward to discussing our ideas in person. Individuals who are authorized to represent Rural/Metro include myself and:

Christopher J. Blach  
Division General Manager – Rural/Metro Corporation of Florida  
4728 Old Winter Garden Road  
Orlando, FL 32811  
407/578-3601  
Christopher\_Blach@rmetro.com

John Karolzak  
Vice President – Rural/Metro South Zone  
1125 Northmeadow Parkway, Suite 120  
Roswell, GA 30076  
678/615-9217  
John\_Karolzak@rmetro.com

Please feel free to contact us directly for any clarification regarding Rural/Metro's proposal.

Best regards,



Bryan Gibson  
Executive Vice President and Chief Operating Officer  
Rural/Metro Corporation  
480/606-3606; Bryan\_Gibson@rmetro.com





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PhD Operations Researcher who has been advancing EMS deployment methods and modeling techniques for greater than 15 years.

**Traditional Demand Calculations**

To create the traditional demand calculations, Rural/Metro used 20 weeks (from 5/14/2010 to 9/30/2010) of incident data obtained from Lake/Sumter EMS to calculate demand by hour-of-day and day-of-week (168 hours). An example of these calculations for Mondays is included below:

	Hour Week	Hour Day	Max	STDEV	Avg. Demand	Avg. High	Avg. Peak	Task Time	95th Percentile	2X STDEV + mean	Adj. Avg. Peak	Smooth Adj. Avg. Peak
<b>Monday</b>	1	0	2	0.7	0.95	1.8	2	1.00	2.00	2.32	2.00	2.0
	2	1	2	0.8	0.45	1.5	1.5	1.00	2.00	1.97	1.50	1.8
	3	2	3	0.9	0.90	2.0	2.5	1.00	2.05	2.72	2.50	2.1
	4	3	2	0.6	0.35	1.3	1.5	1.00	1.05	1.52	1.50	1.8
	5	4	2	0.8	0.60	1.8	2	1.00	2.00	2.24	2.00	2.0
	6	5	3	0.9	0.90	2.0	2.5	1.00	2.05	2.72	2.50	2.3
	7	6	2	0.7	0.80	1.8	2	1.00	2.00	2.19	2.00	2.3
	8	7	3	1.0	1.20	2.8	3	1.00	3.00	3.10	3.00	3.3
	9	8	7	1.7	2.75	4.8	5.5	1.00	5.10	6.05	5.50	4.6
	10	9	4	1.3	2.15	3.5	3.5	1.00	4.00	4.77	3.50	4.1
	11	10	5	1.7	2.10	4.0	4.5	1.00	5.00	5.40	4.50	4.7
	12	11	8	2.0	2.55	5.5	6.5	1.00	5.15	6.52	6.50	5.6
	13	12	4	1.4	1.90	3.3	4	1.00	4.00	4.72	4.00	5.1
	14	13	9	1.8	2.85	5.3	7	1.00	5.20	6.54	7.00	5.9
	15	14	5	1.1	2.25	4.0	4.5	1.00	4.05	4.49	4.50	5.0
	16	15	5	1.3	2.10	4.0	4.5	1.00	4.05	4.69	4.50	4.6
	17	16	6	1.4	2.25	4.3	5	1.00	4.10	5.14	5.00	4.5
	18	17	3	1.1	1.50	2.8	3	1.00	3.00	3.70	3.00	3.9
	19	18	6	1.7	2.10	4.0	5.5	1.00	5.05	5.47	5.50	4.7
	20	19	5	1.3	2.15	3.8	4	1.00	4.05	4.85	4.00	4.3
	21	20	4	1.3	1.25	3.5	4	1.00	4.00	3.84	4.00	3.7
	22	21	3	1.1	1.25	2.3	2.5	1.00	3.00	3.39	2.50	2.9
	23	22	3	1.0	1.15	2.5	3	1.00	3.00	3.13	3.00	2.8
	24	23	3	0.9	1.30	2.5	2.5	1.00	3.00	3.15	2.50	2.5

Provided below is a brief explanation of each of the calculations:





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**Max** – This is the maximum number of requests for service that came in over each of the 20-week periods.

**STDEV** – This is the standard deviation of the data over the 20-week period.

**Avg. Demand** – This is the average of call demand over the 20-week period

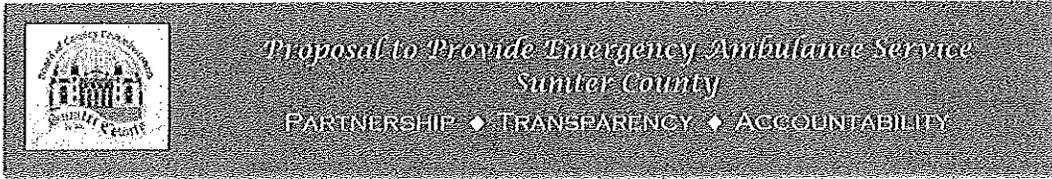
**Avg. High** – The Average High is a traditional demand calculation developed by Jack Stout. One would take the maximum value for the first 5 weeks, the second 5 weeks, the third 5 weeks and the last 5 weeks, sum these values and divide them by 4. This would provide a conservative estimate of the 75th percentile.

**Avg. Peak** – The Average Peak is also a traditional demand calculation developed by Jack Stout. It is derived by taking the maximum value of the first 10 weeks, the maximum value of the second 10 weeks, summing the values and dividing them by 2. The results provide an overestimation of the 90th percentile of demand.

**Task Time** – Traditional demand analysis methods assumed that Task Time to run calls on average was an hour or less. Now that the industry has seen significant increases in Task Time in some markets (usually due to hospital offload delays) we now make adjustments to these traditional calculations using the actual average Task Times for each hour.

**95th Percentile** – This 95th percentile is simply derived by using the percentile formula in MS Excel and setting the variable for percentile to 0.95.

**2X STDEV + Mean** – One demand calculation that was developed after the Avg. High and Avg. Peak is derived by multiplying the Standard Deviation by 2 and then adding it to the



Avg. Demand. The result generally provides a very conservative estimation of demand and is greatly affected by the variance in the data.

**Adj. Avg. Peak** – The Adjusted Average Peak is derived by multiplying the Avg. Peak by the Task Time for each hour.

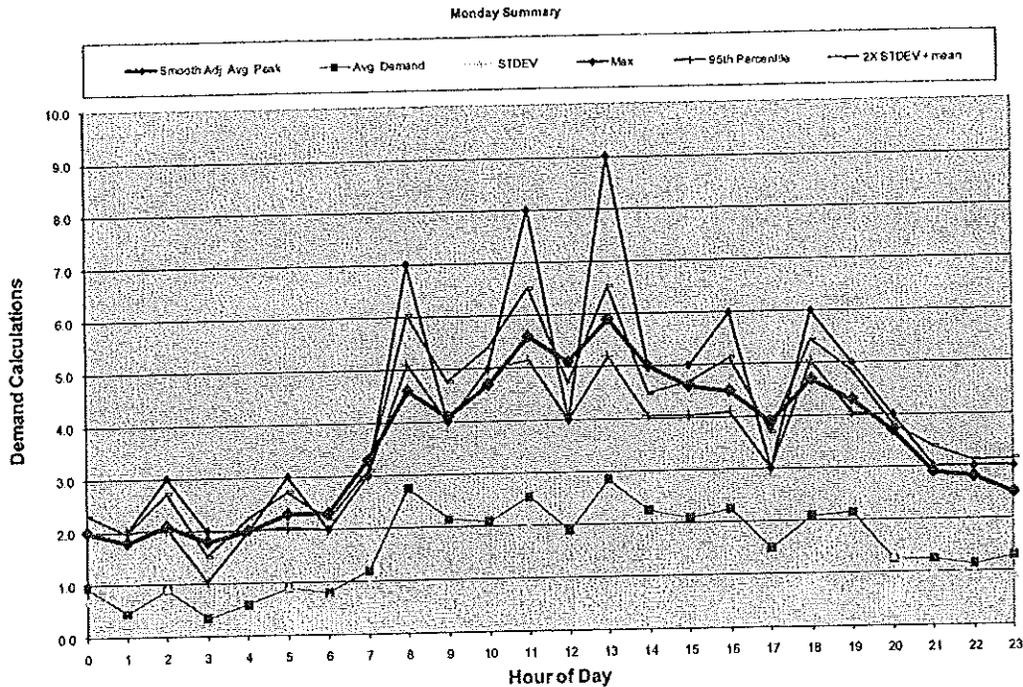
**Smooth Adj. Avg. Peak** – The reason for creating a Smooth Adjusted Average Peak is to minimize the peaks and valleys of the demand, which would make it easier to build staffing plans too. This is achieved for any given hour of the week by using 20% of the Adj. Avg. Peak from the previous hour, 60% of the current hour and 20% of the next hour.

All of these calculations from the table are also presented in a graphical format for each day of the week for ease of use. An example for Mondays follows:



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### Advanced Capacity Planning Using Queuing Theory

Many experts in the EMS industry feel traditional approaches to demand analysis are based on as much "art" as on "science." One of the distinct advantages of incorporating queuing methods into the capacity planning process is that it converts much of the art into science. This allows planners to make decisions based on data rather than on intuition. The reason queuing converts traditional capacity planning processes from art into science is because it takes into account variables such as busy probabilities, response time threshold and indirectly, geo-spatial considerations. This will be explained in more detail below.



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### **Key Questions**

Following are some of the key questions at a system level that queuing will help answer that traditional methods will not:

- How many units should the system have in operation during the hour or some other time period?
- What are the chances that 1, 2, 3, ... units are busy at any one time?
- What are the chances that at least 10 units (or any other number) will be available at a point in time?
- What fraction of calls cannot be immediately answered because no units are idle/available?

### **Relationship to Traditional Demand Calculations**

Some of the differences and relationship to traditional demand analysis approaches include:

- In traditional demand analysis, one tries to estimate the 90th percentile (or something more conservative) of hourly call demand.
- Analysts set the number of vehicles so that there is enough capacity to serve demand in 90% of the hours over the past 20 weeks.
- The 90th percentile is based on an empirical demand realization with no distributional assumptions on calls per hour.
- An assumption that service time is 1 hour per call.



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### **Basic Queuing Theory**

Some basic assumptions considered in appropriately applying queuing theory to EMS

Capacity Planning include:

- One unit type (if there are multiple unit types they need to be analyzed separately);
- Service times/rates (defined below) are independent of the particular unit and are stationary (may depend on the location of the call);
- Calls come to the system from a process where there is a large population (> 5000) and each person has a low probability of calling the system during any short time period;
- The "Arrival Rate" (defined below) of calls to the system is stationary (mean rate is not changing over time) otherwise we have to break up the day into stationary time periods (therefore we break this up into 168 hours over the week);
- Each call uses a single unit (if this is not true, then we can approximate by adjusting demand upwards); and
- There is no waiting in line; if all units are busy, then there is a system operating in parallel (mutual aid) that serves the call.

### **What Are We Calculating?**

At a detailed level the mathematical formulas behind these calculations are very complex.

At a very high level, we are trying to determine system utilization levels (busy probabilities).

The basic variables at various staffing levels are included below:

D = Demand arrival/rate of calls (calls/hour) or average calls per hour



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S = Service rate of calls (calls/hour) or number of patients served per hour (this is the inverse of system task time)

N = Number of units (at various levels)

U = System Utilization =  $D/(S * N)$

= total work time / total time available

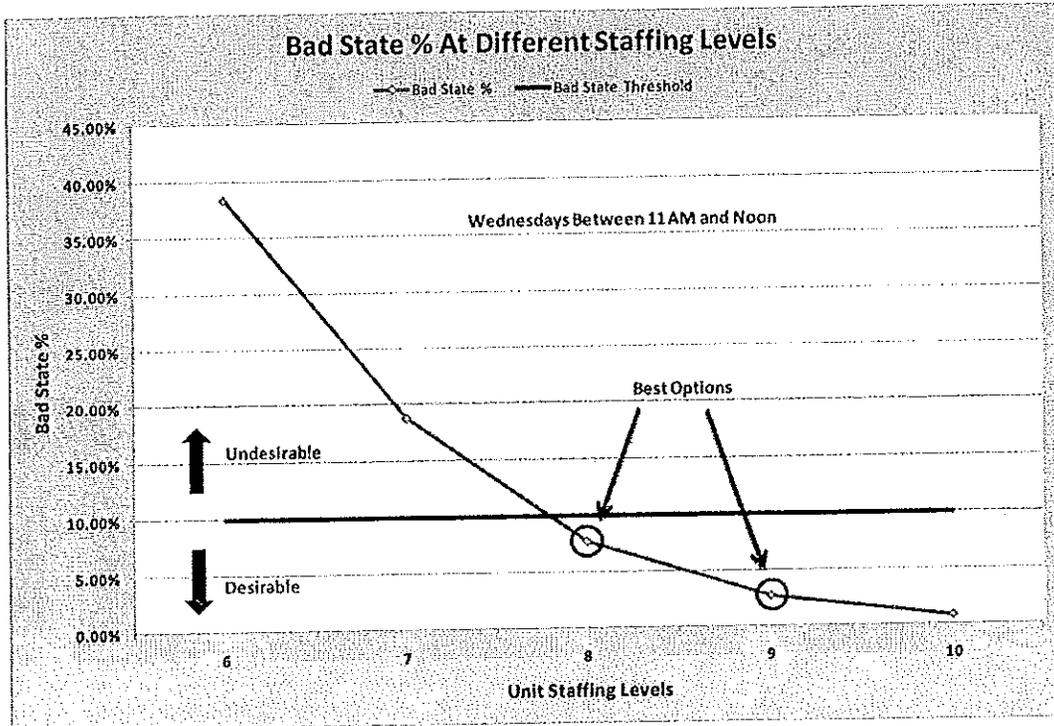
- Generally we want  $U < 1$  otherwise, you are always behind
- When U is close to 1, randomness causes backlogs or lost calls

As discussed above, two key variables of basic queuing theory are "Arrival Rates" and "Service Rates." Arrival Rate is simply the average requests or average demand for the period of time being considered. Service Rate is the amount of customers (i.e., EMS calls) at a "System Level" that can be served over the same period of time as the Arrival Rate. In calculating system utilization (U) we are trying to estimate what percentage of time we are going to be in a "Bad State." "Bad State" is defined as the level at which you don't have enough units to potentially service the next incoming call at the various staffing levels analyzed. (In Sumter County we have determined this to be 4 units from our "Minimum Critical Vehicle Limit" geospatial analysis described later.) The graph below illustrates the basic relationship of unit level staffing and "Bad State" percentages:



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When looking at staffing levels for a system similar to that historically experienced in Sumter County, one would look to staff at a level that would generate a bad state percentage of less than 10% and probably closer to 5% (a sweet spot area). The graph above shows that if you staff at 8 units during this hour you will be in a "Bad State" (have less than 4 units available) right around 7.69% of the time and just under 3% if you staff at 9 units.

One of the significant advantages of queuing analysis over traditional demand analysis calculations is that queuing also analyzes the ramifications of staffing from one level to another. In looking at staffing from one level to the next, one might assume that the relationship or 'system ramification' of staffing from one level to the next (up or down) is a linear relationship. Queuing analysis clearly illustrates that this relationship is not linear;

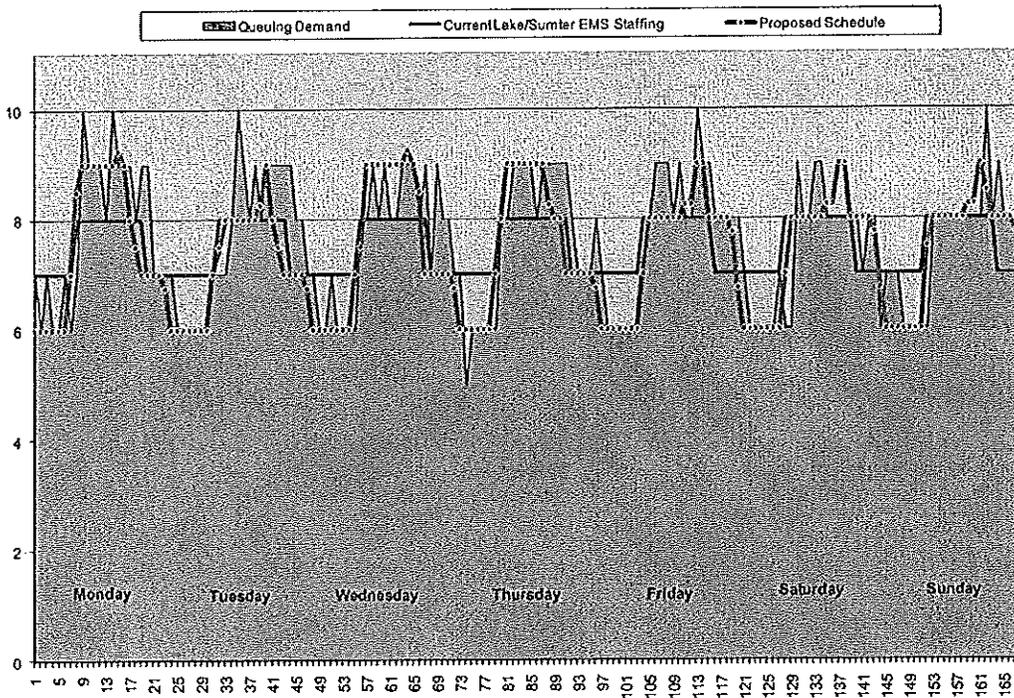


## Proposal to Provide Emergency Ambulance Service Sumter County

PARTNERSHIP ♦ TRANSPARENCY ♦ ACCOUNTABILITY

rather, it is exponential. The graph above clearly shows that as you reduce the number of vehicles staffed you quickly ramp up the percentage of time you will be in a "Bad State." Conversely, as you add unit hours beyond the level necessary you quickly reach a state of diminishing returns. Traditional demand calculations have significant limitations when compared to techniques using queuing theory.

In the queuing demand/staffing graph that follows, one can clearly see the schedule proposed by Rural/Metro more closely matches the demand of the Sumter County EMS System.



### 3) Letter of Transmittal

April 1, 2010

Ms. Rhonda Scott  
Director, Purchasing & Materials Management Division  
City of Orlando  
City Hall at One City Commons  
400 South Orange Ave. – 4<sup>th</sup> Floor  
Post Office Box 4990  
Orlando, FL 32802-4990

Dear Ms. Scott:

LifeFleet Southeast Inc., a subsidiary American Medical Response (AMR) d/b/a Orlando EMS is extremely proud to submit our proposal to the City of Orlando for Emergency Ambulance Services. Our goals for the City are simple; to provide the City with world class emergency medical services with the highest customer service and clinical excellence, in a fiscally responsible manner. Orlando EMS looks forward to partnering with the City and other local stakeholders in creating a tailor-made, community-based EMS system with a direct focus on customer service and clinical outcomes.

In our proposal, we commit to the financial resources and other support necessary to maintain a sustainable ambulance service while enhancing and stabilizing pre-hospital care and transportation for the residents and visitors of the City. We strongly believe that no other provider can offer or embrace the depth of commitment we and our system partners see as vital for the City of Orlando.

We ask you to review the key services Orlando EMS is 100% committed to offering and providing for the City.

We offer the City:

- An unrivaled approach to an integrated EMS system with the City of Orlando Fire Department, City Leadership, Health Care Community and the citizens and visitors of Orlando.
- A commitment to provide the following by day one of the contract start date; February 1, 2011:
  - Local facility for operations, communications and fleet maintenance
  - Industry leading, new Type III ambulances with AVL/GPS technology
  - Industry leading, new Hybrid Supervisor Vehicle(s)
  - Electronic Patient Care Reports (ePCR)
  - Lucas CPR devices on all ambulances
  - LifePak-15 Monitor/Defibrillators



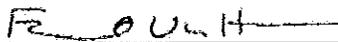
# A Proposal to Provide Emergency Ambulance Service to the City of Orlando

## Our Shared Vision for Orlando

- Stryker PowerPro Stretchers
- Optima Predict
- Optima Live Deployment
- Optima Live Dispatch
- A 1.5 million dollar performance bond
- Bariatric and Critical Care capabilities within the Orlando EMS system
- A commitment to provide a Clinical and EMS Enhancement fund of \$100,000 each year for the first three years of the contract. Thereafter, we will provide \$25,000 per year for the term of the contract. This fund will specifically be for the use by the First Responders for the City of Orlando.
- A commitment to provide reports which will share data on a wide range of areas including, response time performance, clinical performance, personnel credentials, community education campaigns and billing and collection services
- Distance learning options for continuing education, making it more convenient for our personnel to stay up-to-date on their skills and knowledge, and offering this convenient and flexible approach to continuing education to local first responders
- A fully implemented and dynamic system of ambulance deployment utilizing the latest technology.
- An aggressive vehicle maintenance program that ensures vehicle reliability
- Provider that has extensive public safety experience with large entertainment venues and high profile events.
- Disposable Supply Exchange at no cost to the City, City of Orlando Fire Department and other First Responders
- Access to AMR's national purchasing program
- Joint Training opportunities at no cost to the City, City of Orlando Fire Department and other First Responders
- A local Management Team with the experience to operating a high performance EMS systems
- A commitment to hire from the incumbent workforce's Paramedics and EMTs being affected by this change in ambulance provider
- Unmatched access to regional resources for large scale emergencies and disasters
- Development programs that will enhance employees professional growth
- An industry leading benefits package that will foster workforce longevity

We would be honored to serve the patients, residents, and visitors of the City and look forward to partnering with you in the near future.

Sincerely,



Edward Van Horne, Regional Chief Executive Officer, South Region

April 2010



*Attachment No. 7*  
*Detailed Information on Demand*  
*Analysis*



# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

### Detailed Information on Demand Analysis

#### Capacity Planning (Demand Analysis)

We have developed a proprietary process and template which incorporates all traditional methods of completing a capacity planning analysis (many in the industry refer to this as a demand analysis). Capacity Planning is used to determine the number of ambulances necessary to staff each hour-of-day and day-of-week. Orlando EMS has incorporated into its template advanced mathematical principles and methods to more precisely determine appropriate unit staffing levels. These methods were developed with assistance from Dr. Jeff Goldberg from the University of Arizona in Tucson, AZ. Dr. Goldberg is a PhD Operations Researcher who has been advancing EMS deployment methods and modeling techniques for greater than 15 years. David Lindberg, AMR's Vice President of EMS Deployment Systems has been working with Dr. Goldberg for close to 10 years to perfect this capacity planning process and technique which utilizes queuing theory.

#### Traditional Demand Calculations

To create the traditional demand calculations, we utilize the most recent 20 weeks of incident data to calculate demand by hour-of-day and day-of-week (168 hours). An example of these calculations for Districts 1 – 4 on Monday's can be found on the following page.

#### Traditional Demand Calculations (Districts 1 through 4)

	Hour Week	Hour Day	Max	STDEV	Avg. Demand	Avg. High	Avg. Peak	Task Time	95th Percentile	2X STDEV + mean	Adj. Avg. Peak	Smooth Adj. Avg. Peak
Monday	1	0	6	1.9	2.30	5.0	5.5	1.00	6.00	6.20	5.50	5.3
	2	1	7	1.6	1.65	3.5	5	1.00	3.20	4.91	5.00	4.9
	3	2	4	1.2	1.65	3.0	4	1.00	4.00	4.10	4.00	4.5
	4	3	6	1.5	1.95	4.3	5.5	1.00	5.05	4.96	5.50	5.1
	5	4	6	1.6	1.85	3.8	5	1.00	4.10	4.77	5.00	4.8
	6	5	4	1.3	1.65	3.3	3.5	1.00	4.00	4.27	3.50	3.8
	7	6	4	1.2	1.40	3.0	3.5	1.00	3.05	3.78	3.60	3.7
	8	7	6	1.4	2.15	3.8	4.5	1.00	4.10	5.00	4.50	4.6
	9	8	6	1.9	3.50	5.3	6	1.00	6.00	7.31	6.00	5.7
	10	9	7	1.5	3.40	5.8	6	1.00	6.05	6.33	6.00	7.6
	11	10	11	2.9	4.70	7.8	10.5	1.33	10.05	10.43	13.97	11.8
	12	11	10	2.4	3.95	6.8	8.5	1.33	7.15	8.78	11.31	11.4
	13	12	8	1.8	4.05	6.3	7	1.33	6.10	7.57	9.31	9.8
	14	13	8	1.8	4.60	6.8	7.5	1.33	7.05	8.18	9.98	10.1
	15	14	9	2.2	4.90	7.5	8.5	1.33	9.00	9.39	11.31	11.6
	16	15	11	2.9	5.40	9.8	10.5	1.33	10.05	11.11	13.97	12.9
	17	16	9	2.1	4.65	7.8	8.5	1.33	8.05	8.87	11.31	11.7
	18	17	9	2.3	4.80	7.5	8	1.33	8.05	9.42	10.64	10.5
	19	18	8	1.7	4.10	6.0	7	1.33	7.05	7.59	9.31	10.0
	20	19	9	2.2	4.30	7.0	8.5	1.33	8.05	8.66	11.31	10.2
	21	20	9	2.0	4.00	6.0	8	1.00	7.10	8.05	8.00	8.1
	22	21	6	1.6	3.10	5.0	5	1.00	6.00	6.21	5.00	5.8
	23	22	7	1.5	3.00	4.8	6	1.00	5.10	5.90	6.00	5.6
	24	23	5	1.3	2.15	3.8	5	1.00	5.00	4.85	5.00	5.0



# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

- Max – This is the maximum number of requests for service that came in over each of the 20 week periods.
- STDEV – This is the standard deviation of the data over the 20 week period.
- Avg. Demand – This is the average of call demand over the 20 week period
- Avg. High – The Average High is a traditional demand calculation developed by Jack Stout. One would take the maximum value for the 1st. 5 weeks, then the 2nd. 5 weeks, the 3rd. 5 weeks and then the last 5 weeks, sum these values and divide them by 4. This would provide a conservative estimate of the 75th percentile.
- Avg. Peak – The Average Peak is also a traditional demand calculation developed by Jack Stout. It is derived by taking the maximum value of the 1st. 10 weeks, the maximum value of the 2nd. 10 weeks, summing the values and dividing them by 2. The results provide an overestimation of the 90th percentile of demand.
- Task Time – Traditional demand analysis methods assumed that Task Time to run calls on average was an hour or less. Now that the industry has seen significant increases in Task Time in some markets (usually due to hospital off load delays) we now make adjustments to these traditional calculations using the actual average Task Times for each hour. (unfortunately, this information was not available from the city of Orlando so it had to be estimated.)
- 95th Percentile – This 95th percentile is simply derived by using the percentile formula in MS Excel and setting the variable for percentile to 0.95.
- 2X STDEV + Mean – One demand calculation that was developed after the Avg. High and Avg. Peak is derived by multiplying the Standard Deviation by 2 and then adding it to the Avg. Demand. The result generally provides a very conservative estimation of demand and is greatly affected by the variance in the data.
- Adj. Avg. Peak – The Adjusted Average Peak is derived by multiplying the Avg. Peak by the Task Time for each hour.
- Smooth Adj. Avg. Peak – The reason for creating a Smooth Adjusted Average Peak is to minimize the peaks and valleys of the demand which would make it easier to build staffing plans too. This is achieved for any given hour of the week by using 20% of the Adj. Avg. Peak from the previous hour, 60% of the current hour and 20% of the next hour.

April 2010

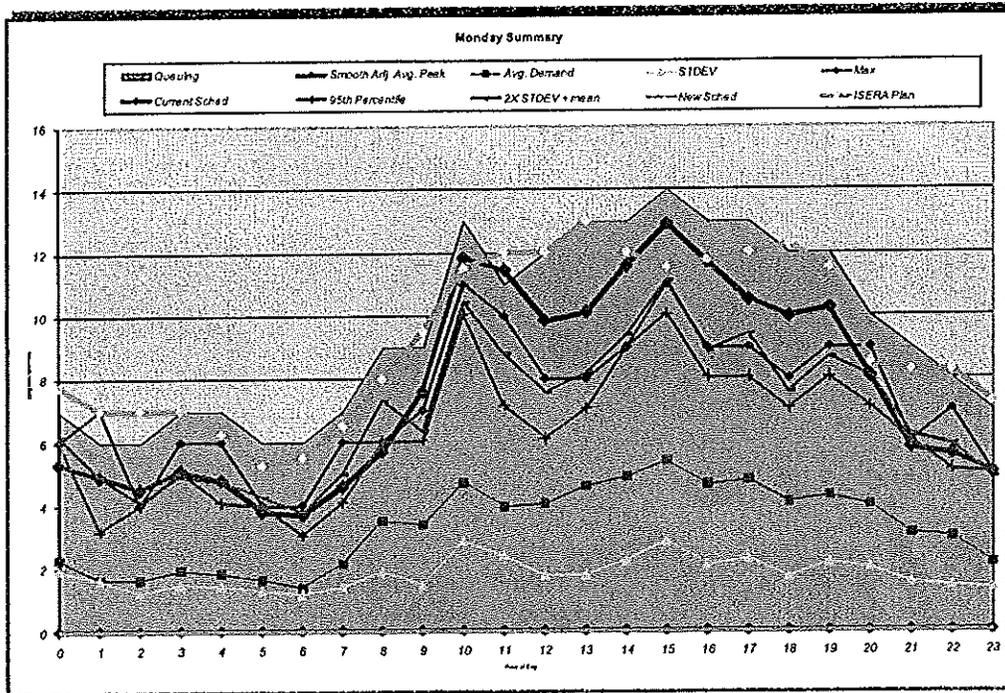


# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

All of these calculations from the table are also presented in a graphical format for each day of the week for ease of use. The example for Mondays is included on the following page.

### Traditional Demand Calculations Graphic (Districts 1 through 4)



Traditional approaches to deployment planning have often been considered 50% art and 50% science. In looking at the demand table and graphs above, one can see that the patterns of demand throughout the day varies widely. From a staffing perspective, this only provides us with the patterns of demand; it doesn't tell us the magnitude of staffing levels necessary to meet the demand. To determine the level of demand to staff too traditionally has been considered the "art" aspect of deployment planning. The reason this analysis doesn't provide us with the magnitude of demand to staff too is because we have to consider response time thresholds and geo-spatial concerns (such as post locations and drive time call capture rates and process variation). For example, using a defined service area and set of post locations (i.e., geo-spatial considerations are equal) the magnitude of staffing (where you staff in relation to the demand line) for an 8 minute response time versus a 12 minute response time would be very different.



# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

### *Advanced Capacity Planning Using Queuing Theory*

As mentioned previously, much of the traditional deployment planning processes are based on as much “art” than on “science.” One of the distinct advantages of incorporating queuing methods into the capacity planning process is that it converts much of the art into science. This allows internal planners at AMR to make decisions based on data rather than on intuition. The reason queuing converts traditional capacity planning processes from art into science is because it takes into account variables such as busy probabilities, service rates, response time threshold and indirectly, geo-spatial considerations.

### *Key Questions*

Some of the key questions at a system level that queuing will help answer that traditional methods will not include:

- How many units should the system have in operation during the hour or some other time period?
- What are the chances that 1, 2, 3, ... units are busy at any one time?
- What are the chances that at least 10 units (or any other number) will be available at a point in time?
- What fraction of calls cannot be immediately answered as no units are idle/available?

### *Relationship to Traditional Demand Calculations*

Some of the differences and relationship to traditional demand analysis approaches include:

- In traditional demand analysis, we try to estimate the 90th percentile (or something more conservative) of hourly call demand.
- We set the number of vehicles so that there is enough capacity to serve demand in 90% of the hours over the past 20 weeks.
- The 90th percentile is based on an empirical demand realization with no distributional assumptions on calls per hour.
- An assumption that service time is 1 hour per call.

April 2010



# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

### Basic Queuing Theory

Some basic assumptions considered in appropriately applying queuing theory to EMS

Capacity Planning include:

- One unit type (if there are multiple unit types they need to be analyzed separately).
- Service times (defined below) are independent of the particular unit and are stationary (may depend on the location of the call)
- Calls come to the system from a process where there is a large population ( $> 5000$ ) and each person has a low probability of calling the system during any short time period
- The "Arrival Rate" (defined below) of calls to the system is stationary (mean rate is not changing over time) otherwise we have to break up the day into stationary time periods (therefore we break this up into 168 hours over the week)
- Each call uses a single unit (if this is not true, then we can approximate by adjusting demand upwards)
- There is no waiting in line – if all units are busy, then there is a system operating in parallel (mutual aid) that serves the call

### What Are We Calculating?

At a detailed level the mathematical formulas behind these calculations are very complex. At a very high level, we are trying to determine system utilization levels (busy probabilities). The basic variables at various staffing levels are included below:

- **D** = Demand rate of calls (calls/hour) or average calls per hour
- **S** = Service rate of calls (calls/hour) or number of patients served per hour (this is the inverse of task time)
- **N** = Number of units (at various levels)
- **U** = System Utilization =  $D/(S * N)$
- = total work time / total time available

Generally we want  $U < 1$  otherwise, you are always behind.

When  $U$  is close to 1, randomness causes backlogs or lost calls

April 2010

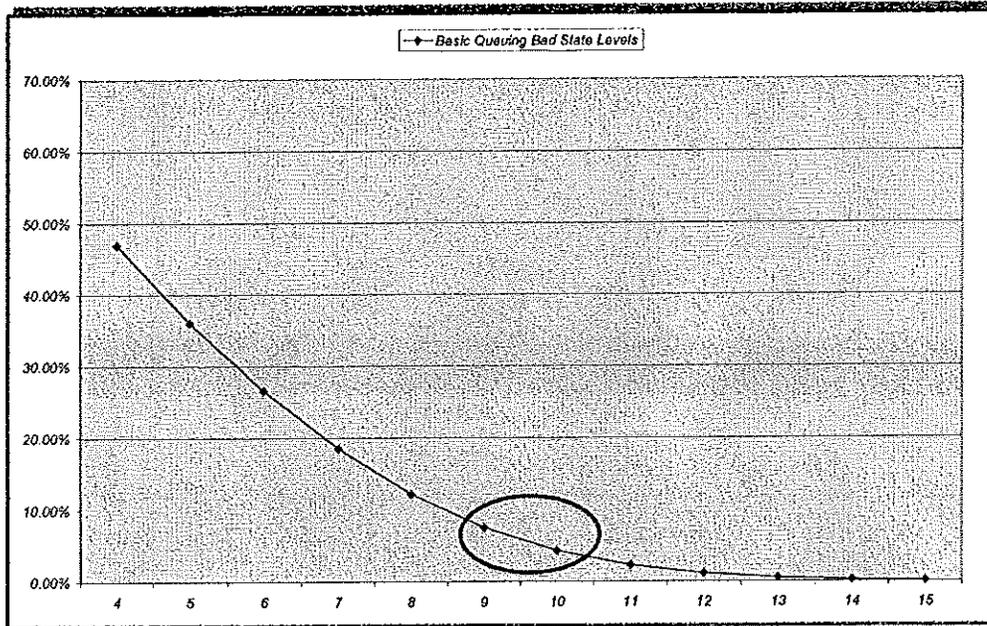


# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

As discussed above, two key variables of basic queuing theory are "Arrival Rates" and "Service Rates." Arrival Rate is simply the average requests or average demand for the period of time being considered (AMR was capable of deriving this from the historical call file provided from Exhibit "E" Ambulance Response Data). Service Rate is the amount of customers (i.e., EMS calls) at a "System Level" that can be served over the same period of time as the Arrival Rate (This had to be estimated based on experience and local market investigation and previous knowledge). In calculating system utilization (U) we are trying to estimate what percentage of time we are going to be in a "Bad State." "Bad State" is defined as the level at which you don't have enough units to potentially serve the next incoming call at the various staffing level analyzed. The graph below illustrates the basic relationship of unit level staffing and "Bad State" percentages:

Basic Queuing Levels Graphic



When looking at staffing levels for a system of emergency calls, one would look to staff at a level that would generate a bad state percentage at 10% or less (because you want to be compliant at 90% or better). The graph above shows that staffing for this particular hour at 9 or 10 units will generate a "Bad State" of less than 10%.

One of the significant advantages of queuing analysis over traditional demand analysis calculations is that queuing also analyzes the ramifications of staffing from one level to another.



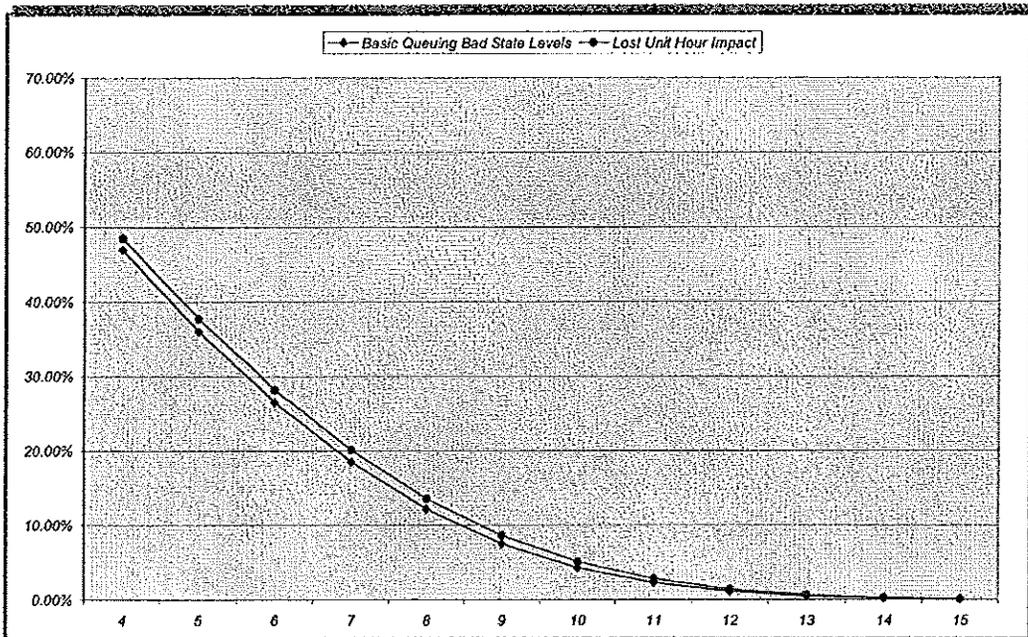
# City of Orlando: Proposal Attachment

## Our Shared Vision for Orlando

In looking at the graphs of traditional demand analysis calculations and matching staffing at various levels to the demand, one might assume that the relationship or 'system ramification' of staffing from one level to the next (up or down) is a linear relationship. Queuing analysis clearly illustrates that this relationship is not linear, rather it is exponential. The graph above clearly shows that as you reduce the number of vehicles staffed you quickly ramp up the percentage of time you will be in a "Bad State." Conversely, as you add unit hours beyond the level necessary you quickly reach a state of diminishing returns.

As Dr. Goldberg and David Lindberg have evolved this approach over time, they have added some additional variables to the queuing capacity planning that are relevant to the EMS industry. The first is a variable that considers lost unit hours (or % of such). Lost unit hours being defined as units an agency has planned to staff, but couldn't put on the street to run calls for the time planned for any reason. As you will see from the graph below, as the lost unit hour percentage increases, so does the ramp up of "Bad State" percentage at the various staffing levels (even if only slightly).

### Basic Queuing Against Lost Unit Hour Impact





*Silver Oak Research*  
5430 East Placita Hayuco  
Tucson, AZ 85718

March 28, 2010

Invoice - 0029

Re: Orlando Proposal Project

Dave, here is the bill for the time for the Orlando Project.

3/28/2010	Orlando Consulting -- data analysis system design, mapping Report construction	\$17,000.00
<hr/>		
Total		\$17,000.00

Please have the check made out to Silver Oak Research and mailed to

5430 East Placita Hayuco  
Tucson, AZ 85718

The tax-ID number is 20-1436310

Sincerely yours,

A handwritten signature in cursive script that reads "Jeffrey B. Goldberg".

Jeffrey B. Goldberg

Exhibit 3

1/18/2011 2:31:59 PM

EMS MANAGEMENT LLC  
 6209 S. SYRACUSE WAY STE 200  
 GREENWOOD VILLAGE, CO 80111  
 303-339-0911

JPMORGAN CHASE BANK, N.A., CHICAGO, IL  
 70-2322  
 719

CHECK DATE: 12-APR-10  
 CHECK NUMBER: 10549872

CHECK AMOUNT: \*\*\*\*\*17,000.00

PAY: Seventeen Thousand Dollars And Zero Cents

TO THE ORDER OF:  
 SILVER OAK RESEARCH  
 5430 E PLACITA HAYUCO  
 TUCSON, AZ 85718

*W. L. ...*  
 VOID AFTER 90 DAYS

ENDORSE HERE  
 2554108

*John B. ...*  
 LEO Silver Oak Research  
 For deposit only  
 402 7777

DO NOT WRITE, STAMP OR SIGN BELOW THIS LINE  
 RESERVED FOR FINANCIAL INSTITUTION USE

PLEASE CONTACT THE ISSUING FINANCIAL INSTITUTION FOR INFORMATION REGARDING THE CANCELLATION OF THIS CHECK.