

— WRITING SAMPLE —

(user manual)

Stephen X. Arthur, technical writer 2005

www.transcanfilm.com/stephenarthur

Image scan 2005. Copyright © 1986 Glenayre Electronics

The Message Manager automated telephone answering system
Manager's Manual (excerpt)

Glenayre Electronics

GLP-3900-224

Issue 2: 7/31/86

7. Staffing

7.1 Introduction

How many Message Manager operators will your TAS need at any given time? The answer can be easily calculated from these two values:

1. The "offered traffic" to all operators during the period in question.
-- This figure is predicted from your traffic statistics printouts.
2. The average delay to answer a call.
-- This answer time is chosen by you.

The number of operators is a direct result of the offered traffic predicted and the average delay chosen (as shown on the graph in Figure 7-1).

Whereas your trunks are like bridges that may occasionally be down and impassable to a caller, the operator traffic is like a freeway onramp -- the answering delay time shows how jammed it is. You determine how jammed you'll allow it to get, by determining how many operators you'll use.

The most useful time for which to determine staffing is your peak period or busy-hour. In addition, fluctuations in offered traffic over the day, or over the week, can be determined from your traffic statistics printouts. These can be used -- all with the same average-delay figure -- to determine accurate staffing to match the fluctuations.

7.2 Offered Traffic to Operators

The "offered traffic" is the total amount of traffic offered to your operators over a given period of time. This is not the same as the total traffic offered to your trunks, because some of that traffic may have been blocked (with a fast-busy signal from the telephone company), especially if your TAS is "under-trunked". These calculations for staffing assume that you've already established the correct number of trunks (see Section 3 "Conversion" under "Determine Trunks Needed", or Section 6, "Traffic Statistics", under "Adjusting to new Trunk Requirements").

Offered traffic is measured in "traffic units" (also known as "Erlangs"). One traffic unit is equivalent to one trunk continually busy for one hour. This means, for example, that if you have two operators busy on calls for a total of 30 minutes each during a given hour, those two operators handled a total of one traffic unit. Ten operators each working for 6 minutes during an hour period would also equal one traffic unit; 3 minutes each would yield 0.50 of a traffic unit.

Since there are 3,600 seconds in an hour, one traffic unit is equal to 36 CCS (hundred call-seconds). To determine your offered traffic, measure it in CCS and then simply divide by 36 to convert to traffic units.

The offered traffic to all operators is a product of two statistics, as defined in the following simple steps for determining your offered traffic:

1. **Average rate of calls** (for busy-hour or other period) --
 - Sum the NUMBER OF INCOMING CALLS plus the NUMBER OF OUTGOING CALLS from the Operator Statistics printout, TOTAL operators, for a one hour period.

- Add Calls Lost: It's possible that your operators are taking a little too long to answer calls; you may be losing some of the calls because callers are hanging up before getting connected. Check the TOTAL NUMBER OF CALLS LOST on the Call Statistics printout for the period in question. Add the number of any calls lost to the total you already have for "average rate of calls".
 - Alternatively, you can take your figures for "average rate of calls" from TOTAL NUMBER OF INCOMING CALLS plus TOTAL NUMBER OF OUTGOING CALLS from the Calls Statistics printout. These automatically include any calls lost; you don't have to worry about them.
2. Average operator call-handling time -- Locate the figure for the AVERAGE HANDLING TIME (in seconds, from the Operator Statistics printout).
 3. Offered traffic (#1 X #2) -- Multiply together the "average rate of calls" and the "average operator call-handling time"; their product is the total offered traffic in seconds, over a one hour period. Convert this figure to traffic units by dividing by 3,600, and you've got your offered traffic.

7.3 Average Delay and the Number of Operators

You've calculated your offered traffic to operators. Now look at the three-dimensional Figure 7-1 below:

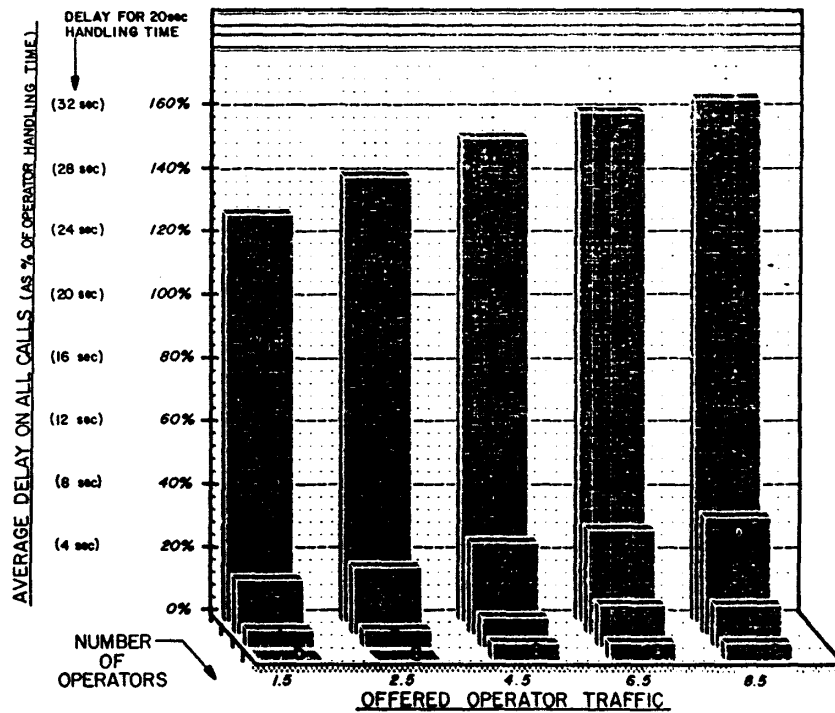


Figure 7-1 -- Graphs of Staff Number Versus Answer Delay Time for Selected Offered-Traffic.

First, isolate the bar graph for the offered traffic that most closely corresponds to the traffic for your TAS.

The bar graph you've isolated now shows you the number of operators you need for a chosen answer time (a measure of your customer service).

- The number of operators is shown increasing "outward", out of the page; the actual number of operators is stamped on each bar.
- The average delay time on all calls is shown vertically, by the height of the bar, for each of these numbers of operators.
- The delay is shown *as a percentage* of your usual operator call-handling time. To get your actual delay in seconds, take the percentage shown of the actual average operator call-handling time for your TAS (which you've already found in order to get your offered traffic).
- Many TAS bureaus operate with an average call-handling time of 20 seconds per call. In Figure 7-1, alongside the scale of percentages, is the number of seconds delay for a handling time of 20 seconds.
- A rule of thumb:

You likely want to operate at a delay of under 16 seconds per call. That being the case, notice that the number of operators needed is roughly equal to your offered traffic in traffic units, plus one. A simple method of estimating the number of operators you need, then, is to just add one to the number of traffic units you have.

- Remember: Figure 7-1 is three-dimensional -- to pinpoint the correct delay time corresponding to a chosen bar, use a ruler tilted at the same angle as the "number of operators" axis, which juts out from the dotted lines of the "backboard".
- Note: If you add a new trunk or two to increase your grade of service, you're also increasing the number of calls coming in to the operators -- the answer delay time is increased unless you also boost your staffing.