

▶ Whitestone Report

A Model for Allocating M&R Funds in a Multiple-Site Organization

The allocation of maintenance funds among multiple sites is often based on incomplete information and ad hoc judgement, even among the largest organizations. For the U.S. Air Force, Whitestone analysts specified an allocation model that takes into account size, condition, rate of use, and location in determining the appropriate share of total funds. Experimentation with the model indicated that facility condition had a relatively small influence relative to facility size. It was also found that a model based on objective need may be only the first step in realizing a distribution of funds that incorporates all organizational priorities.

Organizations with multiple facilities--such as government agencies, schools and universities, medical groups, manufacturers, retail chains, and real estate trusts--typically have a need to distribute scarce maintenance and repair (M&R) funds among multiple sites whose individual requirements are together greater than the total funds available. There are two general considerations in determining such allocations:

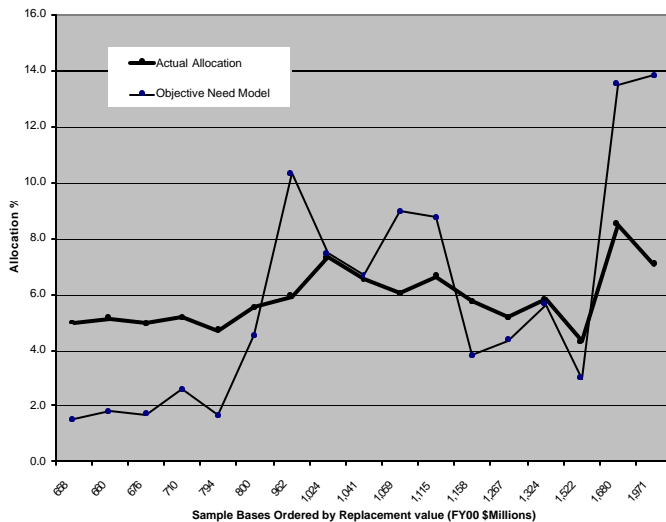
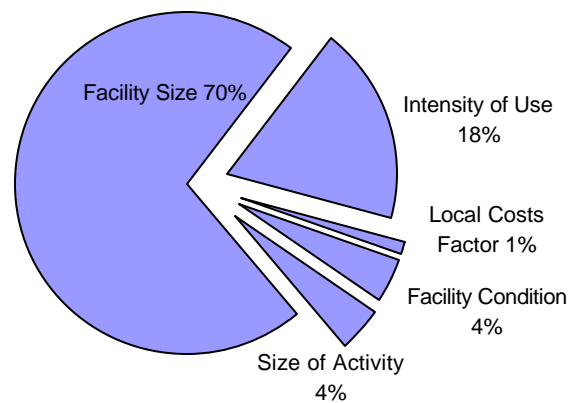
Objective Need funding is based on some combination of facility size, condition, rate of use, and location.

Organizational Priorities funding is based on priorities unrelated to the physical state of the facility; e.g. relative importance to the organization mission, desire for equality among facilities, reward for meeting performance objectives.

A model for estimating funding allocations based on objective need was specified for a sample of 17 Air Force Bases.¹ This model is unique as it includes a measure of facility condition, the physical plant index (PPI), thus making an explicit link between condition and funding.

Among the five variables in the model, facility size was the most important influence in terms of determining the allocation of funds.² On the other hand, facility condition plays a very small role (4 percent) in explaining the allocation, largely because of the narrow range in base condition (PPI values ranged from 70 to 86, on a scale of 0 to 100). In addition to the dominant affect of size, it was also noted that the model did not account for "show-stopping" problems--such as inoperable airfield lighting--in determining base allocations.

Objective Need Allocation Model



The distribution estimated by the objective need model was compared with the actual allocation of funding among the sample bases. The actual allocation was determined through a combination of decision rules and management review. The most obvious difference between the two distributions was the range of funding share: the objective need model awarded funding shares of 2 to 14 percent to individual bases, while the actual allocations showed much less difference, varying from 4 to 8 percent.

Air Force management noted that great inequality in funding among bases was indefensible, regardless of objective need. Thus we conclude that planning for facility funding will always include part objective analysis and part subjective incorporation of organizational priorities.

¹ The model is a linear combination of variables with parameters derived from the variation in actual Air Force data.

² Percentages shown represent the explained variation of each variable relative to total explained variation (97 percent) of the model.