

Cost savings through strategic staffing

Surrey (B.C.) Fire Service develops a model to predict unplanned absences and saves significant dollars

By KARIN MARK with
Fire Chief LEN GARIS

The City of Surrey Fire Service – one of B.C.'s largest fire departments – has chopped its vacancy staffing costs by three-quarters with the help of a new method for predicting absences.

In early 2001, Surrey Fire Chief Len Garis initiated the development of a software model to help his department, which has more than 300 fire fighters, deal with rising staff costs in the face of new standards by the National Fire Protection Association.

For example, NFPA 1710 calls for a minimum four-person response to incidents, a departure (or turnout) time of one minute, a first-response travel time within four minutes and a full-alarm's travel time within eight minutes.

With the requirement for fiscal responsibility, the department needed to find an innovative approach to maintain staffing costs while working towards those standards. The project team – Garis, Assistant Fire Chief Ron Price, consulting engineer Frederick Culbert and consulting planning analyst Louanne Wong – developed and tested a model that focused on two of the most uncertain variables in staff planning: absences due to sickness and work-related injuries.

Previously, these absences were considered as single-point values in staff cost analyses and no attempt was made to capture or analyze a pattern. This resulted in staffing challenges that could sometimes leave one shift over-staffed while the next would have to call in a replacement at the overtime rate.

Garis said the project was based on the "just in time" concept. "We were trying to position our resources, i.e. our people, to be in the right place at the right time. It was the culmination of having an idea or a problem and coming up with a technical solution."

Based on four years of data, the model used interactive simulations to identify patterns in absences by year, month and even shift. First, existing staffing methods were documented to help reveal strengths and weaknesses and create a record of managers' techniques and knowledge that were previously intuitive. This was then supplemented

with accurate, empirical staffing details to create a model that could provide the basis for predicting future scenarios by plugging in different parameters.

The results of the case study were impressive. Simulations comparing the status quo with the application of absence adjustment data showed a projected annual average on-call staffing cost of \$250,103. The margin of error in the model meant that this figure could be as high as \$276,063, or as low as \$172,630, based on a budget of \$425,000. The absence-adjusted scenario levelled off the individual performance of the department's four shifts, which previously had varied significantly.

On the ground, the results were even more exciting. The techniques, implemented in time for the 2002 budget year, contributed to the department only using 27 per cent of its \$426,000 vacancy-staffing budget – a savings of \$309,039. The results appeared to be similar for 2003.

The introduction of other personnel management techniques in 2002 makes it difficult for the department to say how much of those savings can be directly attributed to the new model. As well, the results may be affected by changes in sick time use or other variables.

"It wasn't the purpose of this thing to be absolutely perfect. It was to apply this to implement techniques that would move it in the right direction," Garis said. "Staff management is a dynamic process that has to be rigorously applied, and the more rigorously you apply them, the better results you get."

However, Garis doesn't hesitate to say the results were far better than had been anticipated. "Certainly we were excited. It exceeded our expectations and it was a credit to the individuals that have administered this on a day-to-day basis to achieve such as swing."

Fire fighter representatives were also positive about the project. "The results have provided us with a consistent level of staffing that is predictable, which has allowed for more effective deployment," said Lorne West, president of Surrey Fire Fighters Union. "By achieving an effective and efficient staffing model, we have been able to move closer to NFPA compliance. Any time

we can deploy in compliance with safe fire-ground staffing practices, not only are our fire fighters safer, but also they are more effective at fire and rescue. The public is safer."

The model has provided a dynamic, scaleable tool that helps managers better predict absences and allocate staff more accurately. It also provides a low-risk way to pre-determine the cost and resource implications of proposed staff or schedule changes.

In people terms, the \$309,039 savings represented about four to five fire fighters, based on an annual per-person cost of roughly \$66,000. The 17-hall department's operating budget for 2003 was \$32.4 million – much of which was personnel-related.

"In the scheme of things it's not massive dollars, but those dollars could be better used elsewhere," Garis noted.

Such a model could potentially help any organization that staffs on a 24-hour, seven-day basis, Garis said. In fact, the RCMP's E-Division, the B.C. headquarters, has expressed an interest.

Other B.C. municipalities have also taken notice of the project. In September of 2003, Surrey won an award of merit in the Best Practices category of excellence from the Union of B.C. Municipalities. ♦



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