OBJECTIVE APPROACH TO JUDGING THE SIGNIFICANCE OF OPERATIONAL RESPONSE CAPABILITY

FOR FS 8 PROPOSED LOCATIONS

The key question for the task force from the start has been same as the framework questions about how to measure "improved response times" and "adversely impacted response". In order to evaluate the ability of each proposed site to satisfy the Fire Department (FD) operational criteria that the County charge included, the task force needs to be able to objectively judge those criteria. It's clearly impossible to move the station location without causing a slower response to someone, but at what level does it become significant. I'll address this for fire protection, since it's more clear, in my opinion.

The County responded to questions on this issue by stating that the County's proposed move *"..... would not create any extended travel times to the existing areas served by Station 8; all remain in the 4-6 minute time frame including those SW and NW.*" The 6 minute time frame, although identified by the County as an NFPA standard in response to a submitted question, would actually result in sharp increases in fire loss, deaths and injuries, according to data collected by FEMA and NFPA, and documented in Appendix A of NFPA 1710, which is the industry standard for career fire departments. Discussion with NFPA confirmed that there is no 6 minute standard, and only the NFPA standard 4 minute travel time.

NFPA's fire response criteria was established because there is a point at which risk increases dramatically. That point is when flashover occurs and the fire leaves the room it originated in. The National Fire Incident Reporting System has provided data over many years that show a dramatic increase in risk of fire loss to structure/contents, deaths and injuries once that point is reached. Properties are either able to be reached within NFPA standards for total response time, or not. That is, they are either at low risk, or they are at high risk. There is no gradual process except before that point is reached, and later as the fire expends itself. With that in mind, IF we assume the County can bring call response and turnout times within NFPA standards, then fire incidents within a 4 minute travel time would be in the low risk category, and fire incidents farther than 4 minutes would be in the high risk category. (see Atch 1, Fire Propagation Risks Per NFPA Appendix A)

If you look at Figures 19 in TriData's 2012 Report, there is a significant gap in 4 minute travel time coverage between Stations 2, 6, and 8, on the west side of Area 4. If the station is moved to the NE, areas in the NE will be gained within a 4 minute travel time, but in addition, areas to the SW will lose their 4 minute travel time coverage, creating a larger gap area. Since there are clearly gains and losses, the question should then be how to measure the net impact of those gains & losses for each proposed site.

That question appears to be answered by TriData in their 2012 Report. First, they note, "*To reduce loss and be efficient a best practice is to place resources close to where they can do the most good -- not treat every area the same (as traditional fire deployment practices dictate)*. They then recommended that performance metrics be based on planning area needs because all planning areas may not have the same demands for emergency services.

Those needs are defined by two criteria: 1) their demand for emergency services, and 2) by a fire risk analysis which is determined by historical fire loss data, that is, where a fire loss has occurred in the past

and it's cost. According to TriData, "*One of the best indicators of fire risk is historical fire loss data*". Using historical fire incident data and fire loss data would be the ideal method to objectively assess the gains/losses from any proposed move of Station 8, and to definitively address the first two FD operational criteria from the County's charge.

To summarize, the 4 minute travel time line defines the change between high risk and low risk fire incidents due to the significance of flashover and a fire leaving the room of origin, but only IF we assume that the call response and turnout times are brought within standard. TriData recommends using historical fire loss data to guide location of fire resources to "do the most good", not arbitrarily locating stations by area covered.

I see no other way to objectively address the first two FD operational criteria of the County's charge. Any other more subjective approach may result in the same answer, but would carry much less weight. The ability to show fire incidents gained and lost, and the attendant fire loss costs, would give teeth to the FD operational needs in the location selection process, especially in the face of other variables, e.g. budgets, etc.

If it is decided not to accomplish the above objective evaluation, two levels of more subjective evaluations are attached.

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5 Attachments:

1. Fire Propagation Risks Per NFPA 1710 Appendix A
2. Figure 7: Fire Incident Density (TriData 2012 Report)
3. Figure 19: Current Fire Station Locations
4. Figure 25: Proposed Near-Term 10 Station Layout
5. "Subjective Approaches to Judging the Significance of Operational Response Capability for FS8 Proposed Locations"
6. "Importance of Early Response, Description & Impact of the Flashover Phenomenon & Medical Emergencies"