

MITRE recommends that the HEC acquire a full test suite of equipment and software. At a minimum, the full test suite should include the same architecture configuration of the production system including CAD and RMS equipment and software as well as external equipment such as MDTs. The configuration should be used for the following:

- Functional and regression testing of major system upgrades.
- Functional and regression testing of maintenance software releases.
- Load testing of current configuration and to address possible growth.
- Interoperability testing of current and future changes to legacy and external systems.
- General troubleshooting and analysis.

6 Recommendations

The end-to-end performance of the City of Houston public safety system can be improved through the incorporation of short term technical solutions and long term strategic activities. Many of the recommendations are similar in overall scope to major goals and priorities identified in the “City of Houston Technology Investment Plan, Fiscal Years 2005 – 2009.” The MITRE assessment independently identified solutions that can improve the performance of the existing public safety system. This section will identify the solutions and activities that should be taken by the City of Houston.

The first actions that should be taken are those that are needed to reduce the occurrences of major outages that have been experienced in the past. These actions include:

- Establish responsibility for end-to-end system management and integration.
- Eliminate single points of failure and establish effective automatic fail over.
- Increase system maintenance scope and time periods to provide a tiered 7x24 support team (technicians and public safety system help desk).
- Enhance HEC system performance monitoring and analysis.
- Enhance security [REDACTED].
- Document current processes and incorporate formal configuration management and risk management processes.

MITRE recommends that the City of Houston appoint or identify at least two positions with overall responsibility for the end-to-end system management and integration of the public safety system. The first position would be responsible for the performance of all of the systems (i.e., network, radio, voice and computer) that support the full operations of public safety from call taking to emergency response as shown in Figure 6-1. The position would be responsible for resolving system integration issues, budget preparation, technical staffing, contact monitoring and direction, and other related management responsibilities. The second position would establish a lead program engineer to provide technical support to the management position. The lead program engineer would be responsible for resolving technical issues, overseeing system testing and performance monitoring, establishing and implementing engineering processes, and providing technical advise as necessary. These positions should not be established to replace or supplement current roles served by HEC, HPD, and HFD staff. On the contrary, they would support the Director of Public Safety in his responsibilities to oversee the operations of the public safety system. This recommendation requires increased personnel budget costs for the manager and engineer and is a recurring cost.

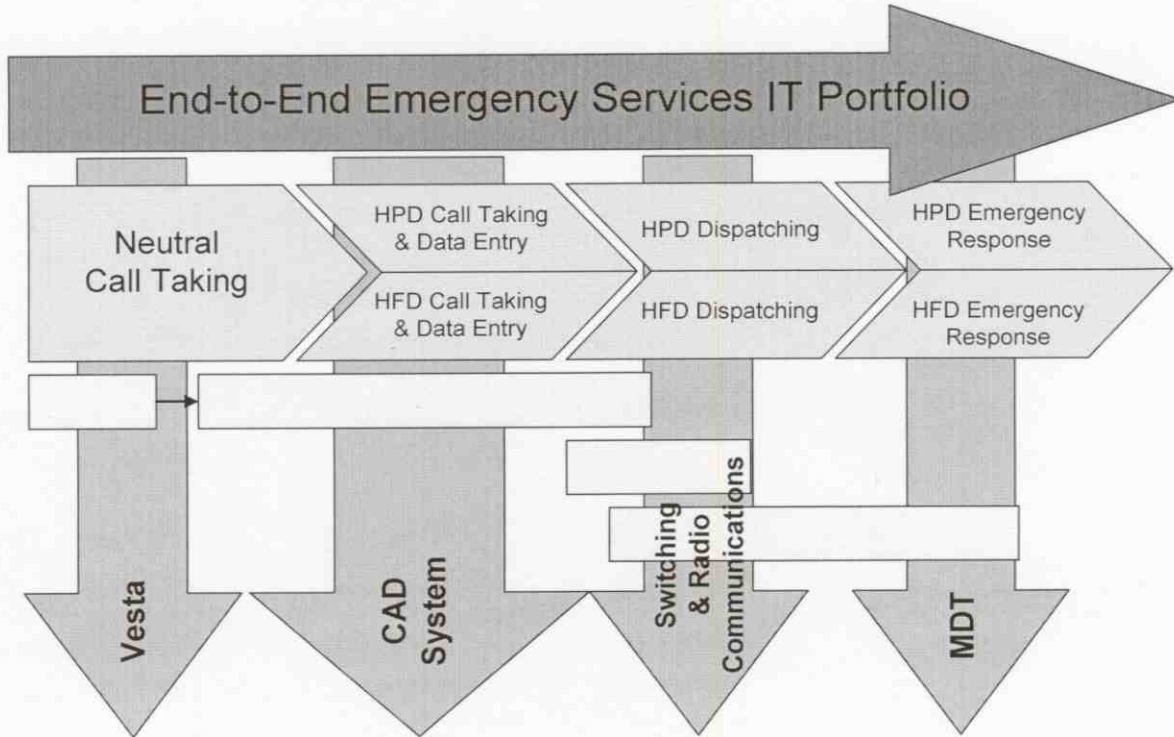


Figure 6-1. End-to-End Portfolio

MITRE recommends that the City of Houston immediately eliminate major single points of failure that could render the public safety system unavailable to HEC, HPD, and HFD users. The SANs and the integrated database should be upgraded [REDACTED] as discussed in Section 3. Both of these components have caused major outages in the past and a failure in them could cause repeat occurrences. Some of the fixes may involve technical changes while others may incorporate new processes or procedures. This recommendation impacts one-time equipment cost during the year of purchase.

MITRE recommends that the City of Houston expand the maintenance contract to expand the equipment warranty coverage, help desk support, and 7x24 service. The City of Houston currently has basic support service and preventative maintenance under their current agreement with Northrop Grumman. The City of Houston should consider exercising the option to add corrective maintenance offered by Northrop Grumman or to obtain an equivalent service. This option would help to potentially resolve issues while the new system is still going through its early stages of operations. The estimated cost to add the expanded maintenance coverage above what the City of Houston currently has is approximately \$550,000 annually.

