

**SUPPLEMENTAL**



*Memorandum*

**TO:** HONORABLE MAYOR AND CITY COUNCIL      **FROM:** Jeffrey L. Clet  
Fire Chief

**SUBJECT:** HIGH RISE AND UNIQUE BUILDINGS ORDINANCE,  
SUPPLEMENTAL REPORT      **DATE:** January 21, 2005

Approved

Date

1.21.05

COUNCIL DISTRICT: All

**REASON FOR SUPPLEMENTAL**

The purpose of this Supplemental Staff Report is to provide more detail regarding answers to several questions that have been raised by the Mayor's Office and Council offices.

**BACKGROUND**

In response to Council direction, Fire staff conducted additional research and outreach, meeting with several developers/architects planning high-rise buildings in San Jose. Fire staff then re-met with members of the Chamber of Commerce development group. Staff also conducted further research relative to cost estimates as well as additional benchmarking with similar cities.

**ANALYSIS**

**Comparable Cities**

Fire staff conducted benchmarking research with the following cities: Seattle, Denver, Phoenix, Sacramento, San Francisco, and San Diego. City staff has previously used these cities for purpose of comparison. Attached to this memo as a matrix, are the results from this benchmarking.

It was concluded that the proposed ordinance differs very little from the four cities that have breathing air ordinances in place. Three of those cities include underground structures. Sacramento does not include underground structures, however, does require a helipad on top of high rises, and equipment storage rooms (with firefighting supplies) on multiple floors.

Some cities studied had ordinances requiring radio signal boosters, or have a pending ordinance. One city plans to survey buildings to see if there is a reception problem. However, all of the cities use radios that work on 800MHz range, which their staffs have identified as resolving most

**HONORABLE MAYOR AND CITY COUNCIL**

January 21, 2005

**Subject:** High Rise and Unique Buildings Ordinance

Page 2

of their reception problems. San Jose Fire radios are in VHF (150MHz bandwidth) and San Jose Police are in UHF (460MHz bandwidth).

San Diego has a pending ordinance that will apply to all existing buildings four or more stories in height. Phoenix is in the process of switching to 800MHz, and have informed their community that they will be testing buildings, with the plan of requiring radio boosters if reception is not adequate.

**Costs**

For Breathing Air Systems, the ordinance requires fill stations on every third floor, beginning with the third floor. A reliable "high" cost estimate is approximately \$12,000 per fill station, which equates to about \$4,000 per building floor. That estimate assumes utilizing a defined system common throughout the Bay Area. This ordinance is primarily performance-based, in that it doesn't specify the design of the fill stations, just the required components and capacity. The rationale for this approach is (a) to ensure the ordinance is generic rather than requiring specific equipment, and (b) to provide flexibility to the developers in how they provide the fill stations.

Fire staff contacted a consultant in Southern California with expertise in the evaluation for and the installation of radio booster/repeater systems for public safety. The consultant has done extensive analysis on installation costs, which he sets at approximately \$25,000 for 150,000 square feet of coverage (about \$0.17 per square foot). Those costs were for retrofit installations, so the cost of a new installation as part of construction could be expected to be lower. In addition, this ordinance will only require signal booster systems in those areas of the building that cannot meet the standard for radio reception, rather than being required in the entire structure.

Fire staff contacted Steve Turner (IT) who has been involved in the specifications for wireless communication systems in the new City Hall. He specifically said that we should not use the first quote received as any measuring stick. Fire also communicated to him our interest in ensuring that the next RFP would reflect the newer, performance-based language of this ordinance.

**Tunnels**

Since the ordinance would apply to any tunnels 500' or more in length, Fire staff interviewed representatives from VTA and BART. Fire has been working with BART for several years, in anticipation of planning for the San Jose extension. Fire staff regularly attends committee meetings on the project. Fire Operations staff have made several visits to both the BART stations and the BART Operations Center to fully understand the system and how public safety works in that environment. Fire staff continues to work with VTA in the design phase for Light Rail.

The City of San Jose has no regulatory authority over Transit Districts. However, our conversations with BART and VTA have been very positive and productive. We have a clear understanding that VTA is willing to continue working with Fire staff to ensure that our

**HONORABLE MAYOR AND CITY COUNCIL**

January 21, 2005

**Subject:** High Rise and Unique Buildings Ordinance

Page 3

operational needs are met. In specific conversations about breathing air systems and radio communications, it was clear that they were willing to design those elements into their tunnels, although the City will have to pick up some of the costs. As a side note, BART also uses 800MHz radios, and automatically installs radio boosters and repeaters in their tunnels that work on those frequencies.

**Breathing Air Systems**

The installation of breathing air systems has been happening nationally for about ten years. The most recent development is that the National Fire Protection Association has a committee working on a national standard for these systems.

**Public Safety Radio Coverage**

Through this process, we have learned that, as a general rule, older buildings have more radio coverage problems than newer buildings. The areas that have the greatest problems are basements and sub-basements, parking garages, and the first couple of floors of high rise buildings. Another issue that affects coverage is the number and placement of repeaters installed by a jurisdiction as part of their communication network.

**PUBLIC OUTREACH**

This was coordinated with the Chamber of Commerce and a group of developers likely to be affected by this ordinance. Both groups expressed their appreciation for our candid conversations, and said that they greatly appreciated our willingness to be flexible in some of the design elements for these systems. Fire provided early drafts of administrative regulations describing the installations for required systems, and will be evaluating feedback from those groups.

Additionally, the County Fire Chiefs and the County Fire Prevention Officers listened to presentations on the ordinance, and have indicated that they are waiting to see what San Jose is doing, with the idea of pursuing matching ordinances if this one is approved.

**COST IMPLICATIONS**

There are no cost implications to the city.

**CEQA**

CEQA: Not a project.



JEFFREY L. CLET  
Fire Chief

City	Air System Ordinance	Comments	Radio Ordinance	Comments
Denver	No	<ul style="list-style-type: none"> <li>§ No current plans</li> </ul>	Yes	<ul style="list-style-type: none"> <li>§ New Construction.</li> </ul>
Phoenix	Yes	<ul style="list-style-type: none"> <li>§ High-Rise Buildings (UBC)</li> <li>§ Underground structures two or more stories below grade with area greater than 10,000 square feet</li> </ul>	No	<ul style="list-style-type: none"> <li>§ Converting to 800 Megahertz.</li> <li>§ After conversion FD will perform survey of buildings</li> </ul>
Sacramento	Yes	<ul style="list-style-type: none"> <li>§ High-Rise Buildings (UBC)</li> <li>§ In addition to the <u>Firefighter Air system</u> the following is required:                             <ul style="list-style-type: none"> <li>§ Helicopter landing on roof</li> <li>§ Fire Equipment rooms</li> <li>§ Secondary water supply</li> <li>§ FD Dedicated electrical outlets powered by emergency generator</li> </ul> </li> </ul>	Yes	<ul style="list-style-type: none"> <li>§ Currently 800 Megahertz</li> <li>§ New Construction</li> <li>§ Change of Use</li> <li>§ Addition of 20% or more</li> <li>§ <b>Exemptions:</b> Buildings less than 5000 sq. ft. &amp; any R-3</li> </ul>
San Diego	No	<ul style="list-style-type: none"> <li>§ Currently working on wildland fire safety ordinance. <u>Tentative plans</u> next to research Air system requirements</li> </ul>	Pending	<ul style="list-style-type: none"> <li>§ Currently use 800 Megahertz</li> <li>§ Developing ordinance requiring <u>existing</u> buildings four or more stories in height, and underground structures</li> </ul>
San Francisco	Yes	<ul style="list-style-type: none"> <li>§ High-Rise Buildings (UBC)</li> <li>§ Underground Pedestrian &amp; Transportation tunnels greater than 150 feet in length</li> </ul>	No	<ul style="list-style-type: none"> <li>§ Currently use 800 Megahertz</li> </ul>
Seattle	Before Council	<ul style="list-style-type: none"> <li>§ High-Rise Buildings. (UBC)</li> <li>§ Underground structures two or more stories below grade with area greater than 10,000 square feet.</li> </ul>	No	<ul style="list-style-type: none"> <li>§ Currently use 800 Megahertz. (Seattle and other cities within county converted to 800 Megahertz in a joint effort)</li> </ul>