

District/Fire Station #5 Staffing and Equipment

The following information is presented to provide the reader with a high level overview of information related to fire/public safety services in District #5 serviced by Fire Station #5.

District Challenges:

- District 5 is primarily an industrial/business area of the city; however, the district also provides service to an estimated 8500 residents. Station 5 was built in 1960 and DPS has maintained the same staffing in this district since that time, one engine staffed with 2 personnel.
- Because district 5 is dissected by Hwy 101 and 237, the district cannot be reached from any other part of the city without traversing an overpass or underpass. In the event of a major natural disaster, such as an earthquake, this area of the city could become isolated due to structural failures of these roadway elements.
- District demographics have drastically changed since 1960. This district has gone from a sparsely populated industrial area that was home to Lockheed and several hundred residential units, to a high tech hub in the region that is home to Yahoo!, Juniper Networks, Network Appliance, Apple and Google, along with several thousand residents.

Building Construction:

- Since 2009, the City has seen commercial building construction increase in density and height. 52 buildings have been built, or are under construction, that exceeds 3 stories in height. Approximately 40 of these buildings are in District 5.
- Of these 40 buildings, 10 buildings are considered High Rise structures (over 75' in height of occupied space) consisting of eight story buildings.

Emergency Response & Mitigation:

- High Rise and Mid Rise buildings and their systems are complex, challenging to access and require significant resources to inspect. During an emergency, they require increased personnel with specialized training and equipment to operate safely due to construction type, building materials, suppression systems, communications systems, location, and layout.
- An April 2013 study by the United States Department of Commerce/ National Institute of Standards and Technology has identified Fire Services staffing needs for High Rise and Mid Rise structures;
 - 48 field experiments were conducted to determine the impact of crew size, alarm size (number of companies responding) and vertical response modes on firefighter safety and effectiveness at a high hazard High Rise commercial structure incident.
 - "Time to Task" data was collected on 3, 4, 5, and 6 person crews to complete the tasks of hose line placement, search and rescue, and fire extinguishment.

Discussion assumes current District 5 crew size is 3 (2 Fire based with 1 Patrol). Proposed District 5 crew size is 6 (4 Fire based – 2 on engine and 2 on truck – with 2 Patrol)

Examples of NIST Findings:

- 3 person crews took 4 min 28 sec longer than the 6 person crew to deploy the initial hose line to the fire floor (10th floor)
- 3 person crews took 7 min 2 sec longer than the 6 person crew to put the fire out. 3-person crews ascending to the fire floor confronted an environment where the fire had released 60% more heat energy than the fire encountered by the 6-person crews doing the same work.
- Larger fires expose firefighters and civilians to greater risks and are more challenging to suppress.
- Six-person crews started the search for civilians on the fire floor 3 min 46 s (22%) faster and completed the search 27 min 51 s (47 %) faster than the 3-person crews.
- A 6-person crew located the victim on the fire floor 28 min 33 s (57.1 %) faster than the 3-person crew.

Proposed District 5 Deployment Model:

- In addition to the current single engine company in District 5, 1 aerial apparatus to provide specialized equipment and ladders for above ground operations which may be required in mid-rise and high-rise structures. The additional aerial apparatus would be equipped with specialized equipment such as High Rise specific fire hose, large area search equipment, and positive pressure fans utilized to ventilate evacuation stairwells.
 - 6 additional public safety officers (2 per day) to staff annually. Along with fire suppression and rescue skills, these personnel would provide emergency medical services, fire suppression, inspections and other emergency and non-emergency services to the people working in the structures, along with enhanced inspection and fire prevention services in the district.