



Presentation Title: Camas, WA: A Replicable Model for Increasing Voluntary Home Fire Sprinkler Installation

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I. Formative Evaluation – Planning

A risk assessment in Camas, Washington, determined that the city was rapidly transforming, with significant housing and population growth that was increasing demands on city services and personnel. In 2003, opposition from the home building industry killed legislation that would have required fire sprinklers in all new homes in Camas. Considering how fast the new housing stock was growing and the fact that half to 2/3 of all new one- and two-family homes use lightweight construction material (NFPA), the lack of required fire sprinklers presented a serious fire risk to the entire community. Today's house fires are more dangerous for civilians and firefighters (NIST). Unprotected lightweight building materials, flooring, and synthetic furnishings make home fires faster, becoming deadly in only as little as two minutes. Fire department response, suppression activities, and exposure to toxic smoke also put responders at risk of injury, death, and disease. Compounding the risk was the lack of knowledge about home fire dangers among consumers and other stakeholders.

Another risk factor identified was the increasing need for the department's cross-trained firefighters/paramedics to respond to fire and other emergencies. The time needed to transport patients to the hospital decreases the ability to respond to other requests for service. Fighting a fire delays their emergency response to other emergencies. While measurable changes are not expected for many years, shortening the number of firefighters needed for fire and shortening their time on the scene will only help.

As a result of this risk analysis and other considerations, the Camas Fire Department determined that fire sprinklers were the best intervention to protect new homes, their future occupants and responders, immediately and for generations to come. However, in 2003, opposition from the home building industry denied legislation that would have required fire sprinklers in all new homes in Camas. In response, the fire department made a plan to increase voluntary fire sprinkler installation through a developer incentive program.

The goals were to achieve better fire protection of a large number of new homes through 1) discussions with stakeholders at the pre-application phase of new-home developments, raising the profile of the fire service ahead of builds; 2) educate the stakeholders involved in new developments about the dangers of new-home fires and the importance of installing home fire sprinklers as a method to protect civilians and responders; 3) offer valuable incentives to developers in exchange for installing sprinklers in all new homes in their developments; 4) educate the general public about home fires and home fire sprinklers concurrently, and 5) advocate for adoption of a local fire sprinkler ordinance to institutionalize these gains.

II. Process Evaluation – Implementation

To address the assessed risks of unprotected new-home construction, Camas-Washougal Deputy Fire Marshal Randy Miller was part of a team that crafted a comprehensive plan to use education and incentives to increase

voluntary fire sprinkler protection. The City waived fire impact fees. Miller worked closely with builder association leaders, developers, planners, city officials, and real estate professionals during the City's pre-application phase for new developments; first to educate them about home fire risk and the life-saving benefits of home fire sprinklers, and second to offer developers potential trade-ups as incentives in exchange for sprinklering entire new-home developments. Some incentives allowed the approval of requested fire code waivers. Some were valuable sprinkler incentives that either reduced costs (such as allowing narrower roads) or increased developer profits (such as greater density). This approach became the template for the thriving Home Fire Sprinkler Coalition's (HFSC) national Developer Incentive Program, funded with a FEMA Fire Prevention & Safety Grant.

While not initially positive, developers began to understand how installing fire sprinklers allowed them to build despite a construction or fire code challenge. They also recognized that sprinklers afforded financial benefits and marketing advantage. Their change was measurable both in their willingness to meet with Camas FD personnel and in their understanding and acceptance of the incentive offers and home fire sprinkler value, resulting in a stronger fire-homebuilding relationship.

A 17-year public education initiative continued during this project, relying in part on free material from the Home Fire Sprinkler Coalition, reaching developers, real estate and insurance agents, homebuilders, Parade of Homes attendees, and other stakeholders. The fire department provided home fire sprinkler information via open houses and presentation of live public flashover and fire sprinkler side-by-side demonstrations, among other educational activities. Information on the documented environmental protection of fire sprinklers (FM Global) was of great interest to Camas residents and officials. The Office received a grant to enhance the side-by-side burn experience, and in 2019, more than 2000 citizens attended a fire, life, and health safety fair that included fire sprinkler education.

The average cost of installation was less than \$1.40 per sprinklered square foot (the national average is \$1.35). Approval of a flow-through system that eliminated a back-flow valve provided savings for homeowners.

III. Impact Evaluation – Short-Term Results

Since 1998, there have been more than 2,900 home fire sprinkler installations in Camas houses, 98% of new housing stock. Fire sprinkler installation did not slow down homebuilding, as some had predicted. There was an increase in the number of houses built each year. The City of Camas issued 235 new dwelling units in 2015, 238 in 2016, 335 in 2017 (Camas-Washougal Post-Record).

Due to success in Camas, neighboring Washougal enacted an ordinance in 2018, requiring residential fire sprinklers in new single- and two-family dwellings.

IV. Outcome Evaluation – Long-Term Results

Four successful fire sprinkler activations occurred with no firefighter or civilian injuries, though injuries occurred in similar circumstances when fire sprinklers were not present. Two fires involved cooking and occupants failing to evacuate immediately, one was an electrical fire, and one was a spray finish explosion fire.

In 2016, Camas unanimously passed an ordinance requiring home fire sprinklers in new single- and two-family dwellings.