Agenda Date: 11/20/2007
Agenda Placement: 9A

NAPA COUNTY BOARD OF SUPERVISORS
Board Agenda Letter

TO:	Board of Supervisors
FROM:	Gabrielle Avina for Loveless, Ernie - Fire Chief County Fire Department
REPORT BY:	Gabrielle Avina, Fire Marshal, 967-1421
SUBJECT:	Residential Sprinkler Ordinance (1st Reading)

RECOMMENDATION

PUBLIC HEARING

Director of the Conservation, Development and Planning Department and County Fire Chief request the first reading and intention to adopt an ordinance of the Board of Supervisors of the County of Napa, State of California, amending Title 15 of the Napa County Code requiring residential sprinklers in all newly constructed residences. **ENVIRONMENTAL DETERMINATION:** Categorical Exemption Class 8: It has been determined that this type if action does not have a significant effect on the environment and is exempt from the California Environment Quality Act because the action is designed to assure the maintenance, restoration, enhancement, or protection of the environment are exempt from review. [See Class 8 which may be found in the guidelines at CCR section 15321.] Additionally, the proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

EXECUTIVE SUMMARY

Procedural Requirement

1. Staff Report.
2. Board questions of staff.
3. Open Public Hearing.
4. Public Comment.
5. Close Public Hearing.
6. Read Ordinance Title.
7. Motion to waive the balance of the title; second; vote.
8. Motion of Intent to adopt an ordinance; second.
9. Board discussion.
10. Vote.

An ordinance amending the California Building Standards Code to require the installation of residential sprinkler

systems in newly constructed homes.

FISCAL IMPACT

Is there a Fiscal Impact? No

ENVIRONMENTAL IMPACT

ENVIRONMENTAL DETERMINATION: **Categorical Exemption Class 8**: It has been determined that this type if action does not have a significant effect on the environment and is exempt from the California Environment Quality Act because the action is designed to assure the maintenance, restoration, enhancement, or protection of the environment are exempt from review. [See Class 8 which may be found in the guidleines at CCR section 15321.] Additionally, the proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

BACKGROUND AND DISCUSSION

On October 23, 2007 staff presented recommendations to the Board to require automatic sprinklers in all newly constructed residences in Napa County. On November 6, 2007 staff returned to the Board with an ordinance for first reading adopting the California Building Standards Code with local amendments absent the recommendation of residential sprinkler systems. This report and presentation is in response to the information requested from the Board, the Napa Valley Taxpayer's Alliance and interested stakeholder's regarding the cost benefit of residential sprinklers, the tangible benefits of residential sprinkler systems and the potential problems associated with sprinkler protection. Staff has also drafted a residential sprinkler ordinance for consideration.

The need for residential sprinkler systems was first introduced to the Board of Supervisors in April 2003 by then County Fire Marshal Kate Dargan as part of a comprehensive long-term Wildland-Urban Fire Plan for Napa County. The plan identified key features to incorporate fire prevention and suppression policies such as public education, changes in local building codes including ignition resistant construction and residential sprinkler systems, technical education, community and emergency planning and enforcement of defensible space regulations. At the April 22, 2003 meeting the Board approved the plan as a concept. In August 2004 Fire Marshal Dargan returned to the Board with Firewise goals for 2004/2005 and outlined the Firewise Plan including residential sprinklers as a component of Firewise 'Built' Infrastructure. The goal of the plan as presented was to incorporate appropriate fire prevention and suppression policies to protect the people and the landscape from fire.

An alternative to traditional fire suppression theories is the movement from fire suppression to fire prevention. The theory is that we are not going to solve the fire problem by simply adding more fire engines or firefighters. To effectively manage the problem we need to incorporate information, education, engineering and enforcement which are the cornerstones of fire prevention. The concept is similar to our approach to wildland fires in the county. We know that we are going to continue to have wildland fires in Napa County so we focus on mitigating the risk. With wildland fires we mitigate the risk by requiring defensible space and by giving residents the information and tools they need to survive a wildland fire. Residential sprinklers are the answer to the structure fire problem; and while they do add costs to construction, they are far more cost effective than the costs resulting from an actual fire and the costs associated with increased demands on emergency services.

National statistics for estimates in structure fire ignitions estimate that approximately 36 structure fires occur every year in every 10,000 homes. In Napa County our statistics mirror the national averages. Statistical information from 2004 through 2006 show that in Napa County we respond to approximately 30 residential structure fires a year in the approximately 9,700 residences in Napa County. The average estimated dollar loss for a residential structure fire for loss to the structure and contents in Napa County is approximately $132,637 dollars compared to the national average loss of $18,389. The potential for a single family residence to experience a structure fire in Napa County is approximately 30 in 10,000 homes or 3 in 1,000 homes in a given year. So what are the odds that any one residence in Napa County will experience a structure fire over a ten year period, the statistics say that there is a 3% chance. Over a thirty year period or the estimated life of a mortgage the likelihood of a structure fire ignition at the property rises to 9%.

Staff has worked with local contractors to determine the costs of residential sprinkler systems. The installation for the sprinkler piping and sprinkler head ranges from $1.90 to $2.75 dollars a square foot from typical or tract home installations to $3.00 to $3.75 dollars a square foot for custom homes. In addition to the cost of the sprinkler piping and sprinkler heads we also have cost estimates on the water storage and delivery options. Residential sprinkler systems installed in areas without a municipal water source have a number of installation options. The first and most affordable option would be an upgrade in the selected well pumps and would cost approximately $700. This installation option is only feasible for wells that are capable of producing adequate water to supply the domestic and sprinkler system. The second installation option is to a 400 gallon tank to store the water needed for the sprinkler system and a booster pump capable of pumping that water to the sprinkler system. Installations under option two would cost approximately $2,850 dollars. The third option includes the price of a 2,500 gallon water storage tank and the booster pump and costs approximately $5300. So when you add the costs of the sprinkler system and the costs of the water storage and delivery cost estimates provided by local sprinkler contractors range from $5000 for a 2,500 square foot home connected to a municipal water source, to between $8,700 to $13,300 for a 2,500 square foot custom home without a municipal water source. Using a conservative estimate of $250 per square foot to build a residence in Napa County those estimates equate to approximately 1% to 2% of the total construction costs.

If a municipal water source is not available then water storage for fire protection is required for all new residences built in the County. Water storage for single family homes has been a requirement for most of the county under Public Resource Code (PRC) 4290 since 1990. The water storage requirements under PRC 4290 and under the Napa County Fire Code (Fire Code) since 1999 requires that all new residences have a minimum of 2,500 gallons of water storage for fire flow. The Fire Code also allows for a reduction in water storage of 50% if the building is protected with automatic fire sprinklers. This reduction in the water storage would translate to 1,250 gallons of water storage for fire flow and 400 gallons of water storage to operate the sprinkler system for a total of 1,650 gallons of water storage as opposed to the current minimum of 2,500 gallons.

Staff has also contacted seven local insurance companies to determine the cost benefit of residential sprinkler systems on homeowners insurance premiums. Of the seven companies contacted only one did not offer a discount in insurance rates for homes protected by automatic fire sprinklers. Three companies offered a 5% discount for homes protected by sprinklers, one company offered a 10% discount and two companies offered insurance rate discounts ranging from 5% to 15 %. If you estimate a typical homeowner policy costs approximately $1000 a year a ten percent reduction in premium would result in a $100 cost savings per year to the consumer. The cost savings on insurance premiums if figured over the life of a thirty year mortgage would be approximately $3000.

The National Institute of Standards and Technology (NIST) completed a 'Benefit-Cost Analysis of Residential Fire Sprinkler Systems' in September 2007. The objective of that study was to measure the expected economic performance of a fire sprinkler system installed in a newly constructed single family dwelling in the U.S. The study concluded that the benefits experienced by residences with sprinkler systems and smoke alarms (which are already required by the code) resulted in 100% fewer civilian fatalities, 57% fewer civilian injuries and 32% less

direct property loss. Those benefits coupled with the homeowner insurance credits of an 8% reduction in annual premiums resulted in a positive value of net benefits in the study.

While the NIST report evaluated strictly the cost benefit of new installations of specific sprinkler systems, the report does not address other benefits of sprinkler systems. There is certainly a measurable benefit to public safety and a potential for a reduction in government spending. As a community grows and fire department call volumes increase, the fire department has to adapt to deliver the same level of service. The recent evaluation of fire department services prepared by City gate and Associates states that because of limited staffing, simultaneous calls for service and long response times, the County's response system is spread very thin and does not have the speed and weight of response in all areas. Because financial restrictions often hamper the ability of a fire department to grow with the community, alternates to traditional fire fighting techniques must be found. One alternate is requiring additional built-in fire protection in new construction. The requirement of automatic sprinklers in new developments is one way to mitigate the structure fire risk that new development will place on the County Fire Department.

A study that shows the long term impact on a community with a residential sprinkler ordinance is the Scottsdale Report. In 1986 Scottsdale Arizona adopted a residential sprinkler ordinance and the Rural Metro Fire Department released figures after studying the impacts to residential structure fatalities and losses for 15 years. The study reports that there were zero deaths in sprinklered homes and during that same time period 13 deaths in unsprinklered homes. Average fire loss in sprinklered homes was reported to be $2,166 and in unsprinklered homes the average loss was $45,019. Water damage was also reduced because fires were contained with only 341 gallons discharged by a sprinkler system as opposed to 2,935 gallons of water from fire department hoses in unsprinklered residences.

A common concern in regard to sprinkler systems is the potential for water damage from the sprinkler system. According to the National Fire Sprinkler Association the odds of an accidental sprinkler discharge due to a manufacturing defect is 1 in 16 million. The fire sprinkler industry takes many precautions to ensure that accidental leakage does not occur. The automatic sprinklers and other system components are tested and listed by Underwriters Laboratories and Factory Mutual Research Corporation to make sure that these devices are not prone to leakage. Component designs are typically tested for integrity at four to five times the maximum water pressures they will see in service, and every single sprinkler is tested at twice its maximum service pressure before it leaves the factory. As a final step in the installation process, the entire sprinkler piping system is also tested under an elevated pressure for a two-hour period, and any leaks must be located and corrected. It should also be recognized that less water is needed to suppress small fires than large fires, and that a sprinkler system typically uses less than one-tenth the water to control a fire than the fire department would use in a non-sprinklered building. The potential for water damage occurring from freezing sprinkler pipes is the same as the potential for water to freeze in the domestic plumbing in a house. Sprinkler piping is typically run in the walls and attic of a structure and not subject to prolonged exposure to temperatures under 40 degrees.

Another misconception about residential sprinkler systems is that they provide protection from wildland fires. Residential sprinkler systems are not effective against an encroaching wildland fire. However, residential sprinklers in residential structures located in our wildland areas will play an important role – namely, to contain a fire originating in such a structure and therefore prevent a structure fire from igniting adjacent wildlands.

The adoption of a residential sprinkler ordinance will not change the role or function of the fire department but will certainly enhance our ability to perform. Requiring automatic fire sprinklers in new residential construction is a means of mitigating the structure fire risk that community growth places on fire department resources. We need to modernize the way we look at fire suppression and the most cost effective means to do that is with fire prevention and built-in fire protection.

Staff requests the first reading and intention to adopt an ordinance requiring automatic fire sprinkler systems in all

newly constructed residential occupancies. Attached to this report is a draft resolution with the required findings of fact for review. If the Board adopts the ordinance staff will introduce the resolution at the second reading and adoption of the ordinance.

SUPPORTING DOCUMENTS

A . Ordinance (tracked)

B . Ordinance (clean)

C . Resolution

CEO Recommendation: Approve

Reviewed By: Helene Franchi