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Office of the City Manager

INFORMATION CALENDAR
July 16, 2019

To: Honorable Mayor and Members of the City Council

From: Dee Williams-Ridley, City Manager

Submitted by: David Brannigan, Fire Chief

Subject: Referral Response: Referral to Improve Fire Safety Standards for Rebuilt Fire-Damaged Structures

INTRODUCTION

Based on certain drawbacks inherent in a post-fire retrofit ordinance, significant obstacles to implementation and possible unintended consequences which may result from such a policy, the Berkeley Fire Department is currently recommending against moving forward with a post-fire, fire code upgrade ordinance.

SUMMARY

This report responds to a Council referral sponsored by Councilmember Worthington. The referral expresses concern that the City does not require that buildings be brought up to current fire and life safety standards after experiencing a fire. Councilmember Worthington states that this lack of a local upgrade mandate has resulted in multiple local property owners being unable to pay for desired fire safety upgrades after a fire using insurance settlements.

Councilmember Worthington referenced two communities in California with retrofit programs that might be used as potential models for a Berkeley ordinance. Of the two referenced programs, the City already enforces requirements that mirror one of the referenced programs. The other program does not address fire or life safety elements and would not be analogous to a potential Berkeley program.

There are many benefits to the Berkeley community when fire safety retrofit programs are implemented. The City of Berkeley has a significant history of requiring fire code upgrades in existing buildings, principally fire protection system upgrades. Unfortunately, there are a number of inherent limitations and drawbacks to a retrofit requirement which is triggered by a fire event occurring in a building. Drawbacks include the fact that fire system retrofit work can be cost-prohibitive for property owners, especially when the work must be performed on short notice following a fire. Construction activities associated with retrofit are disruptive to tenants. Many building occupancies which commonly experience fires may never be subjected to the retrofit requirements because they aren't large enough to trigger fire sprinkler installation, even under current codes. Also, property owners of retrofit buildings may exploit reduced

building standards allowed in sprinkler equipped buildings even though the existing building may not have been properly designed for such reduced standards. .

Finally, the premise of a proposed post-fire retrofit requirement is that a property owner's insurance settlement would pay for such upgrades. Standard insurance coverage specifically exempts building upgrades that are required by a law or ordinance unless owners carry specialized code upgrade coverage. The City cannot compel property owners to obtain such coverage. Given these and other inherent limitations of such a program the Berkeley Fire Department recommends that a post-fire, building fire safety retrofit program not be pursued at this time.

FISCAL IMPACTS OF RECOMMENDATION

Fiscal impacts to the City budget resulting from a post-fire, code retrofit ordinance are expected to be minimal. The number of structures impacted by fire annually in Berkeley are relatively insignificant compared to the work load imposed on City staff by routine building construction and renovation work. Also, the City's policy of using enterprise funds to defray the cost of regulating building development and renovation allows the City to recapture a significant portion of the expense involved in regulating such activities.

CURRENT SITUATION AND ITS EFFECTS

This report responds to referral #2018-29 that originally appeared on the agenda of the November 14, 2017, Council meeting and was sponsored by Councilmember Worthington.

In the Council referral document Councilmember Worthington expresses concern that the City does not currently require that fire damaged structures be reconstructed to meet current fire safety standards. Councilmember Worthington observes that when fire damage to a property occurs, that insurance companies have denied portions of damage claims by owners that may seek to add fire sprinkler or other fire safety systems in damaged buildings. In such cases, the lack of a local mandate for such code upgrades means that proposed upgrades are viewed as voluntary by insurance companies. This situation leaves building owners without leverage when negotiating loss claims with insurance companies even though a property owner may have invested in optional "code upgrade" coverage in their insurance policy. The referral contends that were such fire code upgrades mandatory insurance coverage may pay for the cost of important fire safety upgrades to structures such as the installation or updating of fire sprinkler and fire alarm systems.

The Disaster and Fire Safety Commission reviewed this fire department staff report. At the April 24, 2019 regular meeting of the Disaster and Fire Safety Commission, the commission passed the following motion:

> "Motion to communicate to City Council that the Commission concurs with staff recommendation; however, the commission is examining options the City may

have toward incentivizing and/or requiring fire-hardening of homes and vegetation removal to improve fire safety in Fire Zones 2 and 3, and will follow up within six months.: G. Couzin

Second: Flasher

Vote: 6 Ayes: Degenkolb, Flasher, Simmons, Couzin, Grimes, Dean; 0 Noes; 2 Absent: Stein, Bailey; 0 Abstain: "

BACKGROUND

In the referral Councilmember Worthington identifies two municipalities as communities with post-fire building and fire code upgrade mandates that may serve as a model for the City of Berkeley. These communities are Oakland and Lancaster, California.

A careful analysis of the post-fire upgrade policy published by Oakland reveals that their fire repair policy closely mirrors the policy already in place in Berkeley. Both cities require that when fire damage is repaired that the materials and methods used for repair must meet the current building codes, not the building code used for original construction of the structure. Of the eleven separate points of upgrade related to post-fire repair that are listed in the Oakland policy, ten are routinely required by the Berkeley Building & Safety Division. The eleventh point is a requirement to replace damaged ½" thick gypsum wallboard with 5/8" thick, fire resistive type gypsum wallboard. This requirement maintains consistency with a local Oakland building code amendment which disallows use of 1/2" thick gypsum wallboard in favor of 5/8" thick fire resistive wallboard. Based on the data submitted to BFD for analysis, the Oakland policy does not require that existing structures be retrofit with either fire alarm or fire sprinkler systems as part of a post fire repair or upgrade.

A review of the Lancaster retrofit requirements (contained in Lancaster Municipal Code Chapter 15.04.010, Section 324) shows that the Lancaster requirements are focused on structural and seismic upgrade of buildings after a fire or natural disaster. The character and scope of structural and seismic upgrades and State laws which drive the upgrade process are significantly different than would be the case for a fire or life-safety system upgrade in a building that has experienced a fire. As a result, the Lancaster retrofit requirements are not analogous to the type of building upgrades under consideration in the Council referral and a direct and meaningful comparison of the Lancaster program to a potential Berkeley program is not possible.

The fact that the two exemplar programs referenced by Councilmember Worthington do not precisely match the Council referral's stated intent does not mean that a fire code upgrade program is without merit. The City has long recognized the benefits of exceeding basic fire code requirements and has a significant history of requiring substantial fire and life safety upgrades in existing structures. Significant fire safety retrofit requirements enacted in Berkeley in the recent past are outlined in Table 1.

Table 1- Significant Fire Code Retrofit Requirements Adopted by the City of Berkeley

Date	Upgrade Topic	Summary of Requirements
8/19/1982	Fire Alarm	Certain hotels, apartment buildings and other State Fire Marshal regulated occupancies are required to retrofit manual or automatic local fire alarm systems. [Ord. 5474-N.S.]
2/6/1992	Fire Sprinklers	Certain building defined as "Hotels" in the ordinance (motels, dormitories, rooming houses, congregate residences above a size or occupant threshold) are required to retrofit the building with fire sprinkler systems. Apartment buildings are specifically exempt from the retrofit requirement. The need to comply with the ordinance was triggered by certain events such as the transfer or foreclosure of the property, reoccupancy of a building after 6 months of vacancy or a remodel costing >50k or involving the addition of >1000 sq. ft. In any case, compliance was required not later than 1/1/1997 if no other triggering event occurred at a property [Ord. 6108.N.S.]
8/15/1996	Fire Alarm	Hotels, motels, apartment houses and large congregate residences are required to retrofit manual and automatic fire alarm systems (applied to buildings built prior to 1990) [Ord. 6334-N.S.]

The provisions of the 1992 fire sprinkler and 1996 fire alarm retrofit ordinances are still in effect in Berkeley. In the case of both the fire alarm and fire sprinkler retrofit ordinances, the requirements were driven by local tragedies and the focus in each case is on the life-safety of residential occupants. Since life-safety is the primary focus both retrofit requirements have significant exemptions that allow a building owner to forego retrofit when conditions exist which limit the overall life-safety exposure or otherwise provide an acceptable (if not identical) level of safety to a building retrofitted fire safety systems.

ENVIRONMENTAL SUSTAINABILITY

The logical outcome of a requirement to retrofit fire protection equipment into existing structures would be fewer fires and/or smaller fires which require manual firefighting efforts by the fire department. This reduces the quantity of fire related combustion products and water runoff from firefighting efforts released into the environment and therefore the overall environmental impact of fires on the environment. Any policy resulting in fewer or smaller fires is therefore considered environmentally friendly.

RATIONALE FOR RECOMMENDATION

The Council referral's initiative to explore the concept of upgrading fire damaged buildings to current standards contained minimal specific recommendations but could take many forms. The two criteria presented in the referral for consideration are:

1. A retrofit triggering event which consists of a fire with subsequent repairs to the structure, and
2. Retrofit work which includes fire sprinkler and/or fire alarm installation when such an installation would be required in a similar, newly constructed building.

In order to create a functional and effective fire code upgrade program a potential ordinance would also need to specify a retrofit trigger threshold in addition to the fire triggering event. A trigger threshold generally specifies a level of work or damage which must occur to trigger retrofit requirements. This ensures that a small fire in a large building does not unintentionally trigger an expensive retrofit requirement and allows for a reasonable and fair implementation of a retrofit program. Several forms of triggering thresholds are common, such as a specified percentage of a building area being effected by a fire, a specified percentage of walls in the structure being repaired or a dollar valuation of the repair and renovation work expressed as a percentage of the assessed building valuation (i.e., if the value of all repairs is 50% or greater of the assessed value of the structure, a retrofit would be triggered).

In general, certain aspects of building design and construction are fixed at the time of the original design and cannot realistically be brought up to current code. Historic features such as the type of materials used to construct a building often cannot be changed without completely demolishing and rebuilding a structure. Other features such as exit stairway widths can technically be upgraded but often require extensive redesign of the building and structural changes which would also amount to completely rebuilding the structure. From a fire protection and life safety standpoint, the most practical fire code upgrades with the largest return on investment for the owner and occupants will generally mean the installation of any fire alarm or fire sprinkler systems that would be required in a similar, newly constructed building.

There are many benefits that can be realized when older, preexisting buildings are retrofit with modern fire protection systems. A traditional view of such retrofit requirements often concentrates on the life safety and property protection benefits of early fire detection and extinguishment. As previously stated in this report, Berkeley has already adopted retrofit requirements intended to extend protection to residential occupants who may be vulnerable to fire based on the fact that they reside in congregate and group living environments.

National fire statistics show that a majority of small businesses that experience a fire in their place of business are never able to recover from the event and eventually fail. While some businesses may carry business interruption insurance, there are many factors that cannot be compensated by insurance. This includes the fact that customers are often forced to switch service vendors during a business closure and that key or valuable employees may be forced to find other employment. These business changes can be crippling and are often permanent.

There are a number of inherent limitations when a local initiative requires the retrofit of existing buildings with fire protection systems according to current code. Any bias in the current building and fire codes will apply to retrofit buildings. Such bias within the codes does exist and can have unexpected consequences. For instance, any existing building

with a residential area such as a small rectory attached to a church sanctuary, or a small mixed-use building with one or more apartments above a shop could subject the entire structure to a fire sprinkler retrofit. Any building containing one or more drinking or dining spaces large enough to require two exits could be subject to fire sprinkler installation if the structure is more than 5,000 sq. ft. in size. Such work is often cost-prohibitive for smaller property owners. Also the related construction activities needed to install systems are inherently invasive can severely impact building occupants not originally effected by a fire.

Conversely, many types of commercial buildings including businesses, merchant shops, storage warehouses and factories which commonly experience fires don't require fire sprinkler installation until reaching a size over 12,000 sq. ft. Such buildings may never trigger a retrofit.

Another inherent weakness in a retrofit program that is driven by a structure having a fire event is that the program requires a safety upgrade of the building after a significant fire event has already occurred. While buildings and occupants may ultimately still benefit from fire system installation after a fire event, post-fire retrofit of fire systems is not the most proactive retrofit model available.

In addition to these inherent qualities, retrofitting to current fire code standards after a fire does have other drawbacks. One obvious drawback is the sudden, unexpected monetary expense to the owners of the building in addition to direct losses caused by the fire. An owner may not be reimbursed by an insurance company after a fire. Another potential drawback is that when an existing building is retrofit with a fire sprinkler system that building becomes eligible for numerous tradeoffs which exist in the building code. A building owner may choose to exploit these tradeoffs even though they may not be appropriate for the building in a specific situation. Examples of such tradeoffs include an allowance for increased building area and height, a decrease in the fire resistance of materials, an increase in the number and area of allowable openings in a building next to a property line and decreased levels of safety in the occupant exit system.

Finally, overreliance on fire sprinklers in a community for fire protection can ultimately decrease community resilience in seismic areas. Sprinklers are seismically vulnerable. Studies from the 1990's showed that 34-41% of installed fire sprinkler systems were impaired by shaking following major earthquakes[i]. Where loss of municipal water supply occurs, the result is that essentially 100% of fire sprinkler systems will be impaired.

In addition to the drawbacks previously mentioned, there is a significant obstacle to the implementation of a retrofit program when it is driven by a fire event. The premise of the Council referral is that if the City mandates post-fire code upgrades to structures, insurance settlements could be used to fund the required work. This funding source may or may not be available to a particular property owner. In standard property

insurance policies “Ordinance or Law” exclusions disallow reimbursement of a policy holder for costs associated with upgrading of a building to current codes following a loss. Such “Ordinance and Law” exclusions are a standard element of insurance contracts (ref. Insurance Services Office, Commercial Property “Cause of Loss” form exclusion B.1.a). This contract term effectively excludes loss or damage caused directly or indirectly by the enforcement of any ordinance or law regulating the construction, use or repair of a property. It is currently possible for a building owner to obtain insurance coverage endorsements which nullify an insurance policy Ordinance or Law exclusion. However, a series of significant disasters across the country has resulted in increased demand for and reliance on insurance company claims by the covered insurance pool. These increased disaster losses have prompted insurance companies to become much more conservative in administering claims. The future of such insurance coverage endorsements is not clear.

Also, insurance coverage (including coverage for code upgrades and Ordinance or Law Exclusion) is voluntary and represents a real, recurring cost to building owners. Predicating an upgrade program on the regulated community carrying voluntary elements of insurance coverage could result in a property owner being faced with a local mandate to retrofit fire systems after an incident when no insurance assistance is available due to a lack of appropriate coverage. This could have many unintended consequences such as fire damaged buildings sitting damaged and vacant for prolonged periods of time, taking housing stock off the market, the forced sale of property when upgrades cannot be implemented, etc.

Based on these inherent limitations, drawbacks and obstacles to implementation the Berkeley Fire Department is recommends that a post-fire, building fire safety retrofit program not be pursued at this time.

Dembsey, Nicholas A.; Meacham, Brian J.; Wang, Honggang. *A Literature Review of Sprinkler Trade-Offs*, Report of Literature Review for National Association of State Fire Marshals Fire Research & Education Foundation (Project FAIL-SAFE): Worcester Polytechnic Institute, (date of publication unavailable); pp 35-36; URL (accessed March 19, 2019); https://www.Firemarshals.org/resources/Documents/FAIL-SAFE/The%20Goals%20and%20Objectives%20of%20Project%20FAIL.pdf

ALTERNATIVE ACTIONS CONSIDERED
None.

CONTACT PERSON
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Attachments:
1: City Manager Referral to Improve Fire Safety Standards for Rebuilt Fire-Damaged Structures, November 14, 2017

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CONSENT CALENDAR
November 14, 2017

To: Honorable Mayor and Members of the City Council

From: Councilmember Kriss Worthington

Subject: City Manager Referral to Improve Fire Safety Standards for Rebuilt Fire-Damaged Structures

RECOMMENDATION:
Refer to the City Manager to require repair and replacement of fire damaged buildings to be brought up to current fire safety standards.

BACKGROUND:
In recent years, a number of buildings - both commercial and residential - have burned down. Currently, the owners of fire damaged structures are not required by the City of Berkeley to reconstruct properties to meet today's fire safety standard. This results in the inability of multiple owners of fire-damaged properties to receive coverage from insurance companies/providers for the upgrading of fire preventative measures including fire sprinklers, and alarm systems.

The City of Oakland, with whom we share a vulnerable hills region, mandates all portions of building structures in need of repair following fire damage to meet the current Building and Fire Code for fire protection. Similarly, the City of Lancaster requires that structural repairs to buildings with a damage ratio more than 0.10 (10 percent) be strengthened and brought into compliance with code. In the light of the recent disasters in the North Bay, and the growing threat of climate-induced wildfires, it is prudent that Berkeley follow the lead of our fellow cities to protect building occupants and Berkeley residents from hazard.

This will benefit landlords, who will be able to access insurance reimbursement and tenants, who will live in more fire safe buildings.

FINANCIAL IMPLICATIONS:
Minimal

ENVIRONMENTAL SUSTAINABILITY:
Consistent with Berkeley's Environmental Sustainability Goals and no negative impact.

CONTACT PERSON:
Councilmember Kriss Worthington 510-981-7170

ATTACHMENT:
1. City of Oakland Residential Fire Damage Repair

City of Oakland

BUILDING SERVICES

250 Frank H. Ogawa Plaza, 2nd Floor Oakland, California 94612

RESIDENTIAL FIRE DAMAGE REPAIR

A field check by a City inspector is required for a building permit to repair a fire-damaged structure. The purpose is to verify the extent of damage and to determine what plans, approvals, and related permits (electrical, mechanical, and plumbing) may be required. The field check is before the permit is issued.

All portions of the structure that need to be repaired must meet current Oakland Building and Fire Code requirements for load bearing support, seismic resistance, sound and energy insulation, fire protection, egress, etc.

A separate permit to either remove or legalize all unapproved additions, conversions or alterations to the building, whether damaged or not, must be applied for before issuance of the fire repair permit. All required approvals and related permits (electrical, mechanical, and plumbing) will also need to be obtained for this.

Zoning approval is required for all exterior repairs to the building, including in-kind replacement. If the damage is minor, such as window replacement or minor siding repair, then only exterior photographs of all sides of the building need to be submitted to zoning for review. If damage is extensive, such as rebuilding an exterior wall, then complete plans (site plan, floor plan, and exterior elevations) must be submitted along with the photographs for zoning approval.

All fire-damaged materials must be removed and all smoke-damaged areas must be cleaned and sealed with an approved smoke encapsulating product.

All wood structural members fire-damaged to a depth greater than 1/8 inch must be either replaced or repaired with a new full length sister attached to the damaged member. All charring must be scrapped down to solid wood and sealed with an approved encapsulating primer. These two members must be face nailed along the top and bottom edges with minimum 10d nails spaced a maximum of 16" apart and staggered on opposite sides. All new framing shall be sized per the Oakland Building Code and span between supports. All partial length "sistering" must be engineered. The field check will determine if plans are needed for repairs to the framing. All damaged engineered members (*gluelams, parallams, strongwalls, shear walls, steel, etc*.) shall be evaluated and any replacement or repair designed by a licensed Engineer.

When portions of walls and/or ceiling finishes separating dwelling units, public areas, or service areas such as interior corridors, garages, and mechanical spaces are replaced, the new finishes must be 5/8" type "X" gypsum wall board attached to resilient channels with minimum 3 ½ inch thick insulation batts to achieve the required 1-hour fire separation and STC 50 sound ratings. Other construction methods can be approved if they are listed and tested to meet these ratings.

Current code requires that bedrooms have an emergency egress window (or exterior door). If a non egress compliant bedroom window is damaged, it may be replaced only with windows that do not modify the existing structure or framing opening per CBC Section 3405.A Windows that do not comply with current codes should not increase the level of non-compliance (such as reducing the glazing area) and efforts must be made to increase the level of compliance (such as replacing a double-hung unit with a casement window) whenever possible. All safety glazing, where required must be replaced per current code.

Smoke and Carbon Monoxide detectors must be installed at all locations per 2013 California Residential Building Code.

All damaged wiring must be replaced. All replacement wiring and circuits must meet the current electrical code requirements. Additional circuits and a service upgrade (under a separate permit) may be required.