KENSINGTON FIRE PROTECTION DISTRICT

DATE: October 13, 2021

TO: Board of Directors
Kensington Fire Protection District

RE: **Agenda Item 5b**
Resolution 21-09 Urgency of Public Safety Building Repairs

SUBMITTED BY: Bill Hansell, General Manager

Recommended Action

Approve Resolution 21-09

Background

During the Schematic Design phase of the Public Safety Building renovation project, it has become evident that a Resolution confirming the seismic vulnerability and structural deficiencies of the current building would be helpful for the Board of Directors to approve for the following reasons:

1.) While numerous past geotechnical reports sufficiently document the problem, a summary statement by the Board that both confirms the need for correction and emphasizes its urgency would be helpful to submit as part of grant applications. For instance, we just submitted a Notice of Intent for the FEMA Hazard Mitigation Grant Program (HMGP). Our project matches the goals of the HMGP for seismic projects, and the funding potential is significant (70% of the project cost) with the candidate pool limited to the State. Over the next months, the supplemental application materials will be developed. Documenting the urgency of the repairs will be part of the next submittal and it appears that the definition of “emergency work” includes projects that require longer planning and design approval. While HMGP funds can not be used for construction prior to the award notification, which is August 2022, they can be applied to planning and design expenses that occur after the initial notice, which was August of 2021. Our design work started after that date so, if we receive the grant, we will be able to use it to reimburse our current expenses.

2.) My initial outreach to the Director of Contra Costa County Conservation and Development, which included explaining the challenges of the project, was received well. The Director connected me with the Planning and Building Department heads, who have been very helpful and responsive to date. That said, there are questions regarding the interpretation of the Alquist-Priolo Act that remain to be answered and will have a significant effect on the approval schedule of the project. Clearly expressing how this project affects the safety of Kensington residents and why every month that goes by prolongs the liability of the existing conditions is important for the County to know. Additionally, when the drawings are finally submitted for permit review, we may experience delays due to staffing and the volume of other permits submitted at the time. Documenting our project’s urgency now will help to keep this project a priority. Delays in permitting review can lead to increases in construction cost due to continuing

inflation in the industry. For example, the new cost estimate presented under agenda item 5c represents a $526K increase over the July 22, 2021 estimate.

3.) From a liability standpoint, it is important for the District to be on the record with its intention to finally address these long-standing concerns, and for the staff occupying the building to know this safety issue is being addressed expeditiously.

In addition to the draft Resolution attached here, I have included a letter from Catherine Ellis with Haley Aldrich, who is the geotechnical engineer currently working on the project. Ms. Ellis's work, along with the prior geotechnical reports, is the basis for the soils design requirements that ZFA Structural Engineers are following in their design calculations and specifications of the renovation scope. You can see in the agenda 5c diagrams and plans that the necessary modifications require substantially taking the building apart and adding or replacing major structural components in order to solve the seismic and landslide vulnerability. That work triggers all the other 2019 CA Building Code requirements (e.g. accessibility, CalGreen energy standards, fire resistance, MEP standards etc.) so this Resolution confirms that the driver for the total scope of the project is the responsibility to fix the landslide and seismic issues.

Please note that Ms. Ellis has included general reference material from Haley Aldrich on the Hayward Fault Impacts, as a reminder to how a major seismic event will affect existing buildings relative to their ability to resist lateral forces. As an Essential Services Facility, the PSB needs to remain functional after such an event, especially given the necessary response to the fire impact shown in the slides, let alone for general critical services to continue.

RESOLUTION 21-09

RESOLUTION OF THE BOARD OF DIRECTORS OF THE KENSINGTON FIRE PROTECTION DISTRICT CONFIRMING SEISMIC VULNERABILITY AND STRUCTURAL FAILURE OF THE KENSINGTON PUBLIC SAFETY BUILDING REQUIRING URGENT REMEDIATION

WHEREAS, the stated mission of the Kensington Fire Protection District is "*to provide the highest level of service to Kensington in order to protect the lives, property, and environment of the community from the disastrous effects of fires, medical emergencies, natural disasters, and other hazardous conditions*"; and

WHEREAS, the District's Public Safety Building, located at 217 Arlington Avenue, Kensington, CA, was built in 1970 and serves as the only Essential Services Facility within and central to the District's borders; and

WHEREAS, the District's emergency response and administrative personnel work and reside within the building, along with all of the District's vehicles, equipment, supplies, and communication resources necessary to respond to the Kensington's daily needs and to provide critical response during a major disaster; and

WHEREAS, Essential Services Facilities must remain operational after a seismic event and, therefore, are designed to higher structural standards than other buildings; and

WHEREAS, evidence of structural failure and concerns about significant seismic vulnerability have been documented in numerous studies of the building, including those by *Seidelman Associates* (June 8, 1990), *Geomatrix Consultants* (October 30, 1997), *Kleinfelder West* (May 5, 2009), *Biggs Cardosa Associates* (February 16, 2016), *IDA Structural Engineers* (July 19, 2016), *Advance Geological Services* (November 6, 2017), *Rockridge Geotechnical* (January 31, 2018), *IDA Structural Engineers* (September 5, 2019), and *Haley Aldrich* (October 8, 2021); and

WHEREAS, the Kleinfelder Geotechnical Report of May 5, 2009 states that "*The major geotechnical concerns for this project include: foundation support, potential for strong ground shaking due to a large earthquake, and continued downslope shallow soil creep of the site*"; and

WHEREAS, the Biggs Cardosa Associates Seismic Assessment of February 16, 2016 states that "*Because the building does not meet the latest seismic code requirements and due to its proximity to major earthquake faults there is the possibility that significant structural damage may occur with loss of life during a seismic event*"; and

WHEREAS, past modifications in 1998, 2004, and 2009 did not sufficiently address the building's structural problems, nor provide adequate seismic resistance, which remain significant relative to the requirements of the current 2019 California Building Code for Essential Service Facilities; and

WHEREAS, proposed remediation plans, currently underway by ZFA Structural Engineers, have indicated that the building requires extensive new foundation work, new floor and roof framing, and new shear walls in order to meet the current standards of an Essential Services Facility, as well as to protect the District's personnel and assets; and

WHEREAS, alternative sites are not available for the construction of a new Public Safety Building within the constrained borders of Kensington, thereby leaving no other options than to renovate the existing building, as necessary, to serve the community's emergency needs; and

WHEREAS, the design, permitting, bidding, and construction of a project of this scale requires a number of years, during which time the District's personnel and assets remain at risk; and

WHEREAS, the District's Board of Directors recently engaged the services of architects and engineers, who are expeditiously working with District staff to develop the necessary plans and specifications to fully renovate the building in order to resolve the issues noted above; and

WHEREAS, the Kensington Public Safety Building qualifies as critical infrastructure and is eligible for funding assistance from State and Federal resources targeted for that purpose; and

WHEREAS, the District relies upon Contra Costa County officials to process Planning and Building Department permits, which can determine how quickly a safe and lasting Essential Services Facility is achievable.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Kensington Fire Protection District confirms that the existing Kensington Public Safety Building's structural and seismic deficiencies have been sufficiently documented and must be urgently remediated in order to continue providing essential services to the community.

BE IT FURTHER RESOLVED that the Board of Directors of the Kensington Fire Protection District requests consideration of any available funding by the State and Federal government in order to bring the Kensington Public Safety Building into compliance with current Essential Service Facilities codes and standards, and directs the General Manager to pursue any grant funding that is targeted for that purpose.

FINALLY, BE IT FURTHER RESOLVED that the Board of Directors of the Kensington Fire Protection District requests assistance from Contra Costa County officials to expedite all Planning and Building Department permit processes in the interest of community safety and for the common good.

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The foregoing resolution was duly adopted at a regular meeting of the Kensington Fire Protection District on the 13th day of October 2021 by the following vote of the Board.

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Larry Nagel, President

_____
Janice Kosel, Secretary

HALEY & ALDRICH, INC.
1956 Webster St, Suite 300
Oakland, CA 94612
925.949.1012

08 October 2021
File No. 0201747

Kensington Fire Protection District
217 Arlington Avenue
Kensington CA 94707

Attention: Mr. Bill Hansell, General Manager

Subject: Hayward fault
Kensington Public Safety Building
217 Arlington Ave
Kensington, CA 94707

Ladies and Gentlemen:

The purpose of this letter is to present a discussion on seismically retrofitting the Kensington Public Safety Building. The San Francisco Bay Area will be subject to strong shaking from any of its 16 major faults, including the Hayward fault. Each of these faults has the potential to cause significant damage. When evaluating the potential impacts from a seismic event, fault proximity is a major concern and its potential to generate strong ground shaking and other earthquake hazards that may cause extensive damage. As established through geotechnical and geologic studies, the main trace of the Hayward Fault is located west of the site and there is a strong possibility of a fault splay near the eastern property boundary.

When inventorying a building's resilience to risks of damage from an earthquake, factors including soil and rock type, liquefaction potential, landsliding, age, construction type, and number of stories can influence how buildings will perform in an earthquake.

Currently in California, building codes ensure life safety during a major earthquake but are not designed to shelter-in-place standards. This means that while people will not lose their lives through catastrophic collapse, buildings may very well be damaged to the degree that they will be uninhabitable. Older buildings are even more fragile having been constructed under outdated building codes. This is of particular concern for public safety buildings whose function will be critical following a major earthquake.

Risk of damage can be significantly reduced by retrofitting buildings that are likely to be damaged, particularly those that will experience the strongest shaking and were constructed under older building codes. Retrofitting older buildings will reduce damage. Some buildings will be retrofitted to the degree that they will only be able to protect lives but they will be uninhabitable. Other older buildings can be retrofitted to a higher degree where they can be habitable after an earthquake. They may still however experience some damage. Increased resiliency and its reduction in damage will improve the lives of residents, reduce recovery time, protect assets, and help keep communities more intact.

Based on the proximity to the splay of the Hayward fault and the age of the structure, we strongly recommend that the Kensington Public Safety Building be seismically retrofitted to increase resiliency and reduce the potential of damage from a major earthquake along the Hayward fault.

The services provided for this letter have been performed according to generally accepted geotechnical engineering practices that exist in the area at the time the services were provided. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this letter or in any opinion, documented or otherwise.

We appreciate the opportunity to provide our geotechnical services to you on this project. Please contact Catherine at 925.949.4407 if you have any questions about this letter.

Sincerely yours,
HALEY & ALDRICH, INC.

Catherine H. Ellis, P.E., G.E. (CA)
Senior Associate, Geotechnical Engineer

References:

Aagaard, Brad et al. (2016) "Earthquake Outlook for the San Francisco Bay Region 2014-2043," United States Geological Survey.

Brechwald, Dana and Seligson, Hope (2018) "Bay Area Earthquake, Residential Building Damage & Displacement White Paper," Association of Bay Area Governments.

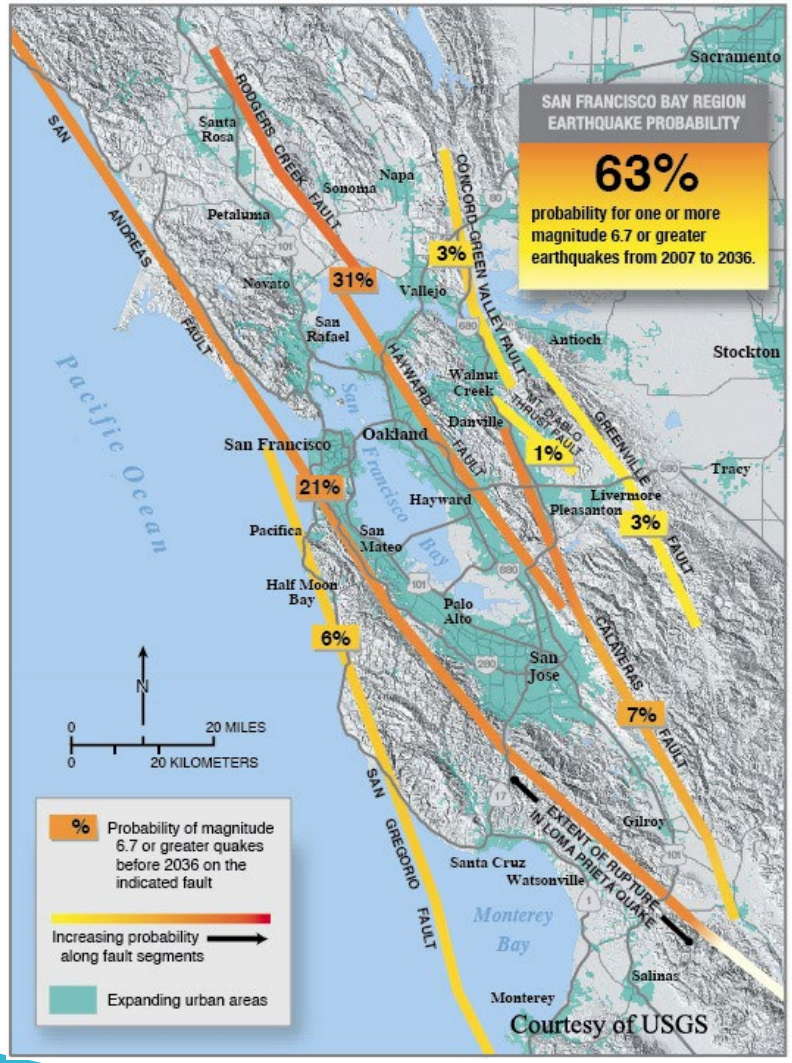
Rockridge (2018) "Preliminary Fault Investigation, Proposed Kensington Essential Services Building, 217 Arlington Avenue, Kensington, California" File Number Project No. 17-1381.

Hayward fault impacts

Catherine Ellis, PE, GE

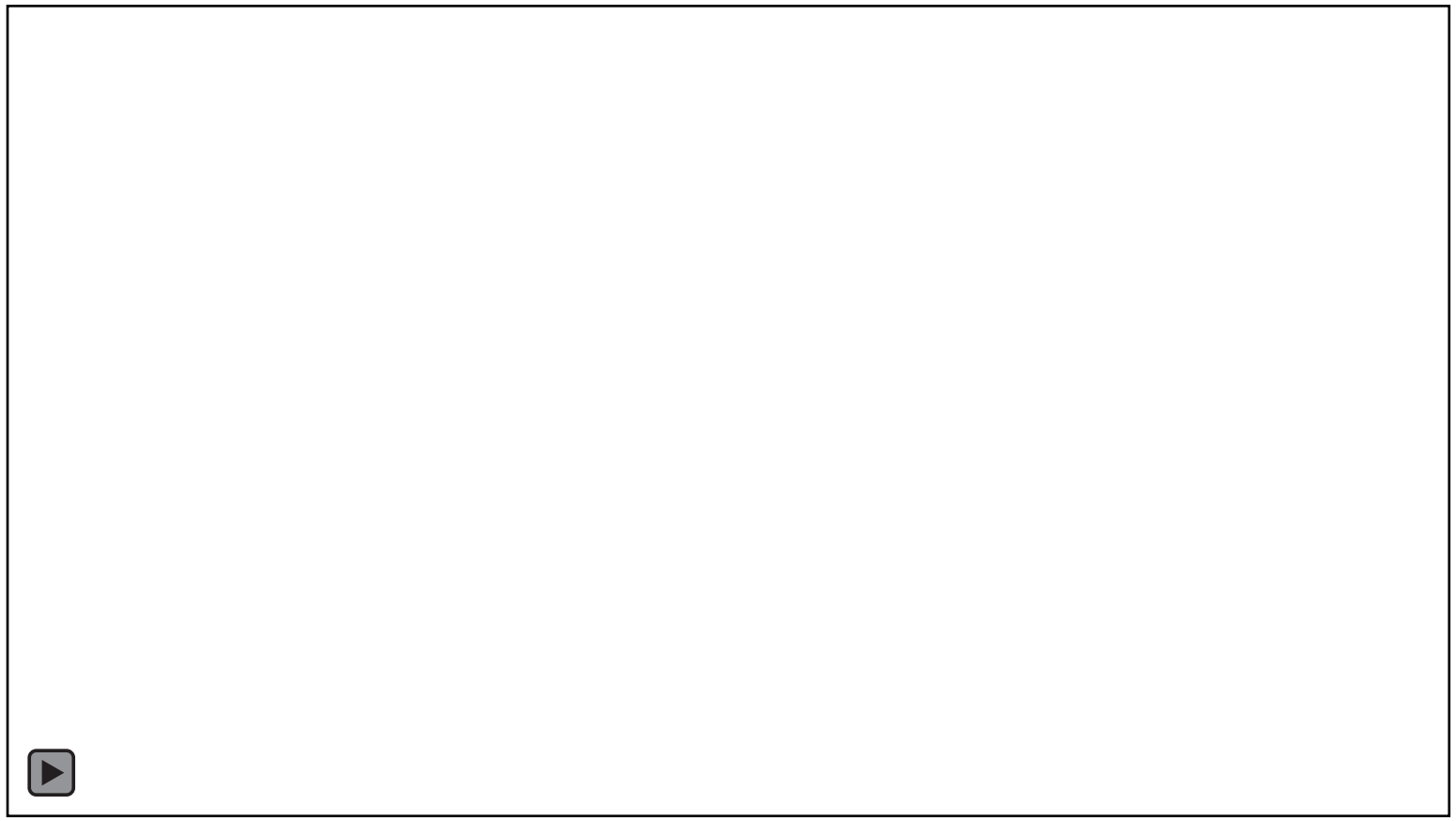
HALEY ALDRICH

What are the chances of an earthquake?



- The Bay Area has a 63% chance of having at least a magnitude 6.7 earthquake in the same time period.
- Scientists have studied the faults extensively and determined that the Hayward is probably the most dangerous.
- It has a 31.7% chance of rupturing in a 6.7 magnitude earthquake or greater in the next 26 years.

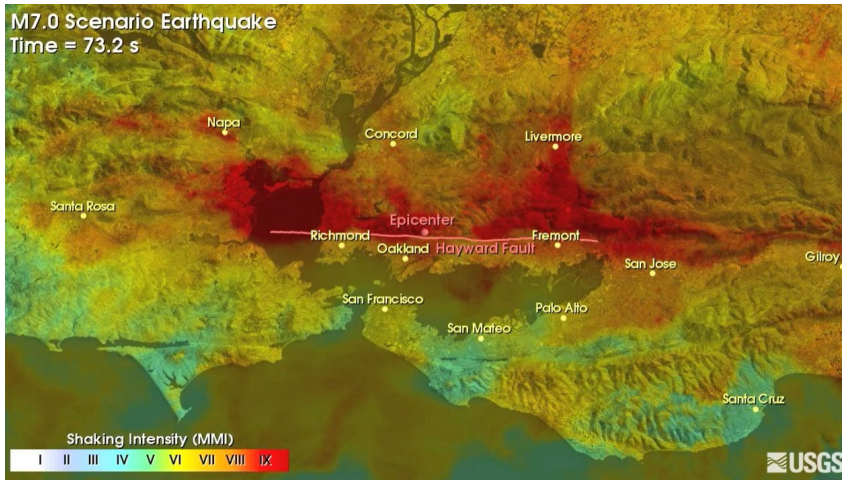
What will the shaking be like?



Intensity	Shaking
I	Not felt
II	Weak
III	Weak
IV	Light
V	Moderate
VI	Strong
VII	Very strong
VIII	Severe
IX	Violent
X	Extreme

https://escweb.wr.usgs.gov/content/learn/topics/shakingsimulations/hayward/HaywardM70_OaklandEp_mapview.mp4

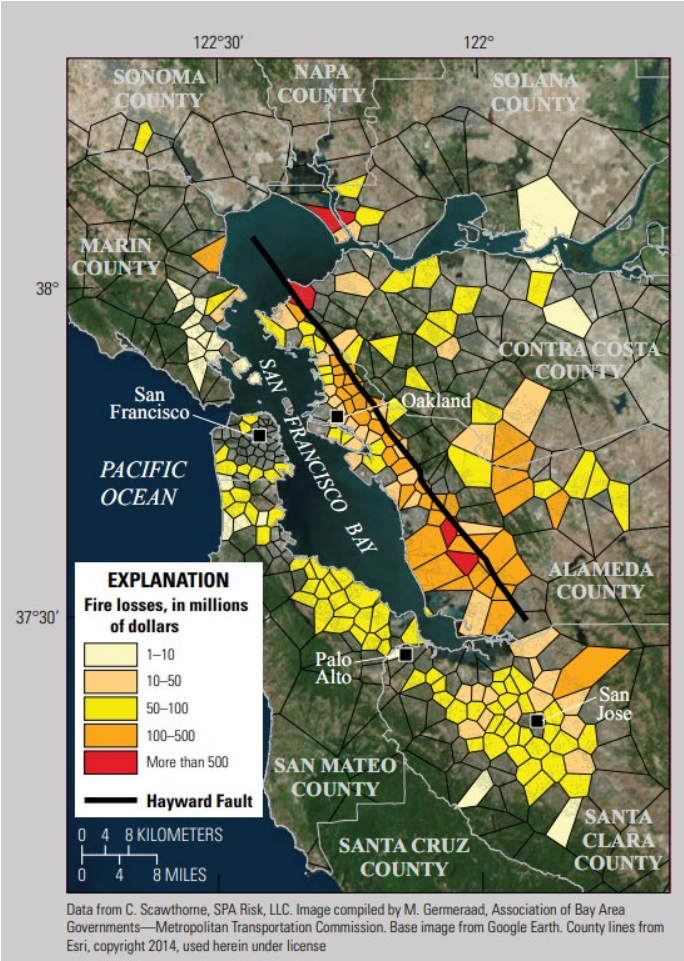
What will the damage be like?



Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest,especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

https://escweb.wr.usgs.gov/content/learn/topics/shakingsimulations/hayward/HaywardM70_OaklandEp_mapview.mp4

What will the fire damage be like?



Data from C. Scawthorne, SPA Risk, LLC. Image compiled by M. Germeraad, Association of Bay Area Governments—Metropolitan Transportation Commission. Base image from Google Earth. County lines from Esri, copyright 2014, used herein under license

- This map of California's San Francisco Bay region shows areas burned as a result of fires caused by the hypothetical magnitude-7.0 mainshock of the HayWired earthquake scenario on the Hayward Fault.
- Warmer colors show areas with greater building losses. Effects are most severe near the Hayward Fault itself. These fires would result in a loss of residential and commercial building floor area.
- The fires following the mainshock would be directly responsible for the loss of hundreds of lives.
- Areas (polygons) shown are based on distance to the closest fire station.