STAFF REPORT

Meeting Date: January, 26, 2016

To: Honorable Mayor & City Council

From: Raj Patel, City Building Official, Assistant Director of Community Development

Subject: City of Beverly Hills Seismic Risk Assessment

Attachments: None

INTRODUCTION

This report transmits an overview of the City's seismic risk inventory assessment, which requires direction from Council to continue development of policies and implementation. The goal of the seismic retrofit program is to reduce the risk to the City's commercial and multifamily building inventory. The City of Beverly Hills contracted Degenkolb Engineers to perform a survey of existing commercial and multi-family structures in Beverly Hills and identify potentially seismically vulnerable buildings. These types of buildings include non-ductile concrete buildings, pre-Northridge steel moment frame buildings and soft-story wood buildings. This effort is consistent with the city's goal of risk assessment as part of the General Plan Safety Element.

DISCUSSION

Background

The goal of the Beverly Hills General Plan Safety Element is to reduce the future impacts of natural hazards such as earthquakes. The city contracted with Degenkolb Engineers to perform a visual survey and record search of existing public and private commercial and multi-family buildings and identify potentially seismically vulnerable buildings. Seismically vulnerable buildings are structures that complied with the building code at the time of construction but have since shown the potential for severe damage in recent seismic events such as the 1994 Northridge earthquake.

This type of retroactive analysis has a historical precedence. In 1989, the city identified a particularly high-risk category of structures known as unreinforced masonry (URM) buildings. These buildings were built prior to 1949 and made of brick

or stone without steel reinforcement and performed poorly in the 1933 Long Beach earthquake. The city performed a similar survey and record search identifying ninety URM buildings. These buildings were subsequently retrofitted as part of the city's mandatory retrofit program.

In a continuing effort to reduce the city's seismic risk, Degenkolb Engineers was tasked with identifying other seismically vulnerable buildings by construction type. Degenkolb Engineers assigned licensed Structural Engineers to walk through the city and conduct a visual survey of all commercial and multi-family buildings. Where visual identification was inconclusive, the engineers attempted to verify the building construction type through the record drawings and permits available in the City's Building Department.

The preliminary results from Degenkolb Engineers identify three (3) construction type categories of seismically vulnerable buildings currently found in Beverly Hills:

- Wood Soft-story Buildings
  These are wood framed buildings where the first floor has large openings such as tuck-under parking. The 1994 Northridge earthquake demonstrated the vulnerability in soft first-story buildings. These buildings were designed prior to 1980.
- Non-ductile Concrete Buildings
  The vulnerability of these types of multi-story buildings was identified as a result of the collapse of Olive View Hospital in the 1971 Sylmar earthquake. These buildings were designed prior to the 1981 adoption of the 1976 Uniform Building Code, which included requirement of additional reinforcement to provide required ductility necessary to resist seismic lateral loads.
- Pre-Northridge Steel Moment Frame Buildings
  The vulnerability of these multi-story buildings was identified after the 1994 Northridge earthquake. These buildings were designed from the 1960's through the 1990's.

In 2004, it was estimated that there were 2,000 commercial and multi-family building in Beverly Hills. Preliminary results from Degenkolb Engineers indicate there are approximately 670 buildings that are potentially vulnerable in a seismic event. A significant majority of these structures are 2 to 5 stories tall and were built between 1930 and 1980. A summary based on building type is presented below:

Type of Construction	No. of Buildings	General Description
Soft-Story Wood Frame	300	2-3 Stories Multi-Family Residential
Non-Ductile Concrete	110	2-5 Stories Commercial
Pre-Northridge Steel Moment Frame	70	2-5 Stories Commercial
Concrete-Wood Hybrid	160	2-3 Stories Multi-Family Residential
Concrete-Steel Hybrid	30	2-5 Stories Commercial
Total	**670**	

In addition, Degenkolb Engineers is surveying 40 City owned buildings; 25 buildings are not considered as potentially vulnerable buildings, while 15 buildings are undergoing further evaluation.

Currently the State of California does not require mandatory retrofitting for these types of buildings. However, various cities have chosen to approve local ordinances requiring retrofit for one or more vulnerable building types. In 2013, the City of San Francisco adopted the Mandatory Soft-story Retrofit Program that may affect 7,600 buildings. The City of Los Angeles adopted mandatory earthquake hazard reduction ordinances requiring retrofitting for Soft-Story and Non-Ductile Concrete buildings in October 2015. The City of Los Angeles ordinances affect an estimated 13,500 Soft-Story and 1,500 Non-Ductile Concrete buildings. The City of Santa Monica requires mandatory retrofitting for each of the three types of buildings. The City of West Hollywood has currently retained an engineering consultant to perform a citywide building survey that is expected to be complete by March 2016.

As the goal is to reduce the future impacts of natural hazards such as earthquakes, staff also continues to work with Degenkolb Engineers to develop minimum technical standards that can be used by a property owner seeking to seismically retrofit their building. Staff is requesting the Mayor and City Council assign an Ad Hoc representative(s) to discuss potential outreach efforts and to assist in developing implementation measures such as; voluntary versus mandatory retrofit program, implementation timeline, financial and zoning incentives, potential tenant and landlord issues, and ordinance compliance. Such measures would also include the timeframe and the manner in which the buildings need to be retrofitted.

FISCAL IMPACT

There is no fiscal impact anticipated at this time.

RECOMMENDATION

Staff requests that the Mayor appoint an Ad-Hoc representative(s) to work with staff to develop implementation measures for the evaluation and retrofit of potentially seismically vulnerable commercial and multi-family buildings. Furthermore, staff recommends that City Council receive the information provided and direct staff as appropriate.

D. Gelton for
Susan Healy Keene, AICP
Approved By