



**CITY & COUNTY OF SAN FRANCISCO**

**April 13, 2016**

# **Patrick Otellini**

**Chief Resilience Officer  
Director, Earthquake Safety Implementation Program**





## CITY & COUNTY OF SAN FRANCISCO COMMUNITY ACTION PLAN FOR SEISMIC SAFETY (CAPSS)



The aftermath of Loma Prieta Earthquake in 1989 resulted in a comprehensive bottom-up approach to resilience by establishing the Community Action Plan for Seismic Safety (CAPSS).



# CITY & COUNTY OF SAN FRANCISCO EARTHQUAKE SAFETY IMPLEMENTATION PROGRAM

ATC **52-2**

## Here Today—Here Tomorrow: The Road to Earthquake Resilience in San Francisco

A Community Action Plan for Seismic Safety



**ATC** Applied Technology Council

Prepared for  
San Francisco Department of Building Inspection  
under the Community Action Plan for Seismic Safety (CAPSS) Project

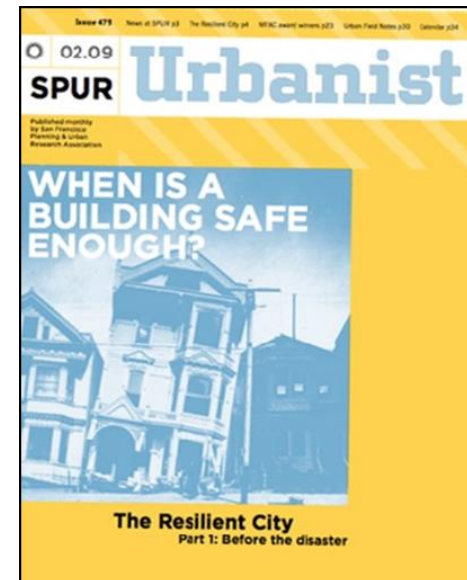
CAPSS Earthquake Safety Implementation Program – 30 Year Plan

Task	Objective	Start	End	Responsible Agency
Task 1.1	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
Task 1.2	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
Task 1.3	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
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Task 1.20	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
Task 1.21	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
Task 1.22	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
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Task 1.29	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection
Task 1.30	Develop and implement a 30-year plan for seismic safety and resilience	2012	2042	San Francisco Department of Building Inspection





## CITY & COUNTY OF SAN FRANCISCO THE SOFT STORY MANDATORY RETROFIT PROGRAM



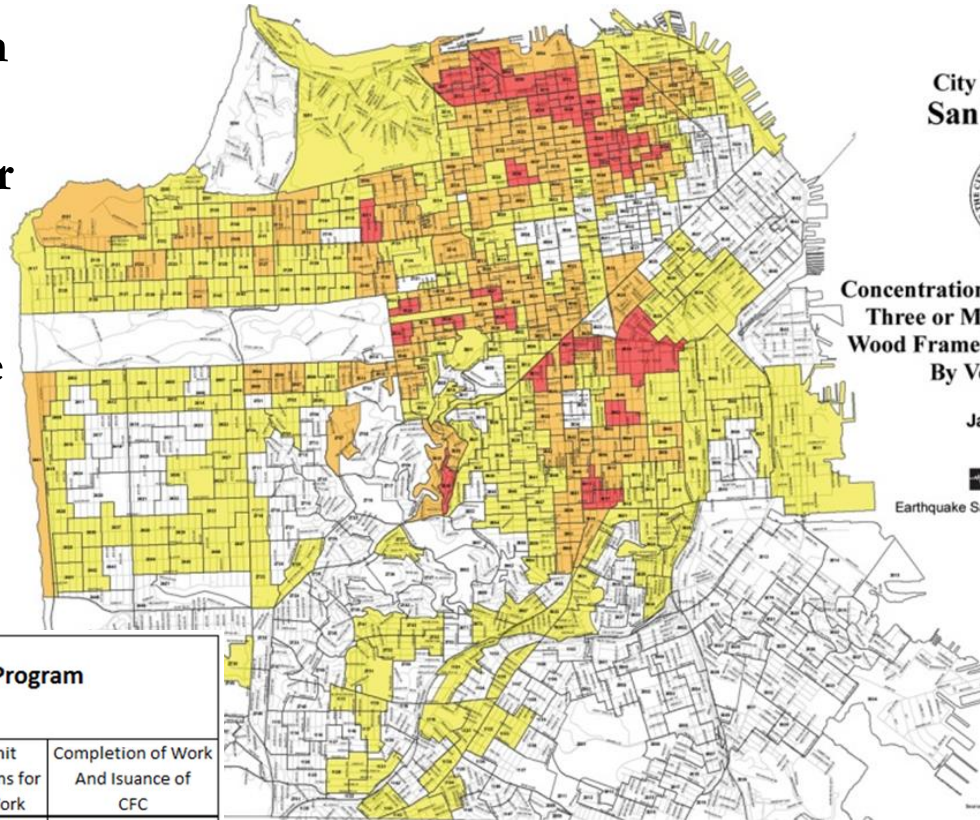
- Building codes were changed in the late 1970's to no longer allow this type of construction.
- These types of dangerous buildings house approximately 15% of SF's total population and represent a significant percentage of the rent-controlled housing stock.



# CITY & COUNTY OF SAN FRANCISCO

## 3402B: SCOPE

- Material: Type V wood-frame construction
- Stories: 3+ or 2 over basement
- Units: Five or more dwelling units
- Age: Pre-1978



Map  
of the  
City & County of  
San Francisco

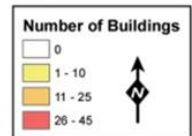


showing  
**Concentration of Five or More Unit,  
Three or More Story, Pre-1978,  
Wood Frame Residential Buildings  
By Voting Precinct**

January 2013



Earthquake Safety Implementation Program



### Wood-Frame Seismic Retrofit Program

Compliance Timeline & Tiers

Compliance Tier	Submission of Screening Form and Optional Evaluation Form	Submittal of Permit Application with Plans for Seismic Retrofit Work	Completion of Work And Issuance of CFC
I	September 15, 2014	September 15, 2015	September 15, 2017
II	September 15, 2014	September 15, 2016	September 15, 2018
III	September 15, 2014	September 15, 2017	September 15, 2019
IV	September 15, 2014	September 15, 2018	September 15, 2020

All Notices Due: September 15, 2014



# CITY & COUNTY OF SAN FRANCISCO BUILDING INDUSTRY RELATIONS

**Discussions with Mayor Edwin M. Lee**



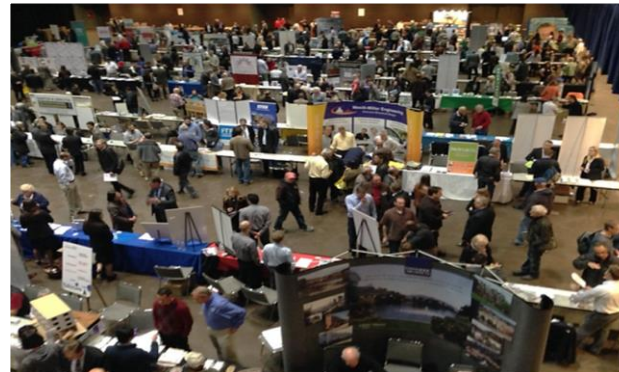
**Department of Building Inspection Workshops**



**Community Outreach**



**Earthquake Retrofit Fair**





# CITY & COUNTY OF SAN FRANCISCO

## SOFT STORY DATA AS OF FEBRUARY 24, 2016

Total Noticed Buildings	6735 Buildings
Total Properties that are Subject to the Ordinance	5054 Buildings
Rate of Compliance	99.99%
Screening Forms in Process at DBI	2
Properties Currently Out of Compliance	1
Permits Submitted	1325
Work Completed	514
Exemptions Requests Rejected	41
Average Estimated Valuation of Sample Retrofits	~\$67,500

DO NOT REMOVE UNDER PENALTY OF LAW! DO NOT REMOVE UNDER PENALTY OF LAW! DO NOT REMOVE UNDER PENALTY OF LAW!



The San Francisco Department of Building Inspection - Tom Hui, S.E., C.B.O., Director  
SFBC Section 340B.6.1

## EARTHQUAKE WARNING!

**This Building is in Violation of the Requirements of the San Francisco Building Code Regarding Earthquake Safety.**

The owner(s) of this building have not complied with the Mandatory Soft Story Retrofit Program, as required by SFBC Chapter 34B. Please contact the Department of Building Inspection at [softstory@sfgov.org](mailto:softstory@sfgov.org) or (415) 558-6699 or [www.sfdbi.org/softstory](http://www.sfdbi.org/softstory).

### 地震警告!

這棟樓宇違反三藩市建築條例有關地震安全的要求。

根據三藩市建築條例第34B章，本棟樓宇業主未遵守軟層建築物防震加固計劃強制規定。請立即與樓宇檢查部連絡。電話: [softstory@sfgov.org](mailto:softstory@sfgov.org) 電話: (415) 558-6699 或網址: [www.sfdbi.org/softstory](http://www.sfdbi.org/softstory)

### ¡ADVERTENCIA DEL TERREMOTO!

Este edificio está en la violación de los requisitos del Código de construcción de San Francisco en cuanto a la seguridad del terremoto.

El propietario o los propietarios de este edificio no han cumplido con el Programa Obligatorio de Acondicionamiento de Pisos (Mandatory Soft Story Retrofit Program), según lo requiere el Código de Edificios de San Francisco Capítulo 34B (SFBC Chapter 34B). Favor comunicarse con el Departamento de Inspección de Edificios (Department of Building Inspection) a: [softstory@sfgov.org](mailto:softstory@sfgov.org) o (415) 558-6699 o [www.sfdbi.org/softstory](http://www.sfdbi.org/softstory).

DO NOT REMOVE UNDER PENALTY OF LAW! DO NOT REMOVE UNDER PENALTY OF LAW! DO NOT REMOVE UNDER PENALTY OF LAW!





# CITY & COUNTY OF SAN FRANCISCO FINANCING PROGRAM



## Soft Story Retrofit Program

### INTRODUCTION

The Mandatory Soft Story Retrofit Program was created in 2013 as a multi-year community-based effort by the Earthquake Safety Implementation Program (ESIP) to ensure the safety and resilience of San Francisco through the strengthening of all older, wood-framed, multi-family buildings in the City and County of San Francisco with a soft-story condition.

This new ordinance was adopted to guide property owners on seismic strengthening in order to better protect vulnerable buildings from collapse during the next major earthquake. Extensive research has found that buildings in the 'soft-story' category are susceptible to major structural damage, making the seismic strengthening of such buildings a civic priority.

### SUBJECT BUILDINGS

All San Francisco buildings that are wood-framed, permitted for construction prior to 1973, contain five or more residential dwelling units and are three or more stories (or two stories over a basement or underfloor area that have any portion extending above grade), and have not yet been seismically strengthened are included under this ordinance and are eligible for financing provided by the AllianceNRG Program. These buildings are not necessarily seismically unsafe, but rather fit the profile of buildings known to have weaknesses that the Soft Story Retrofit Program will address.

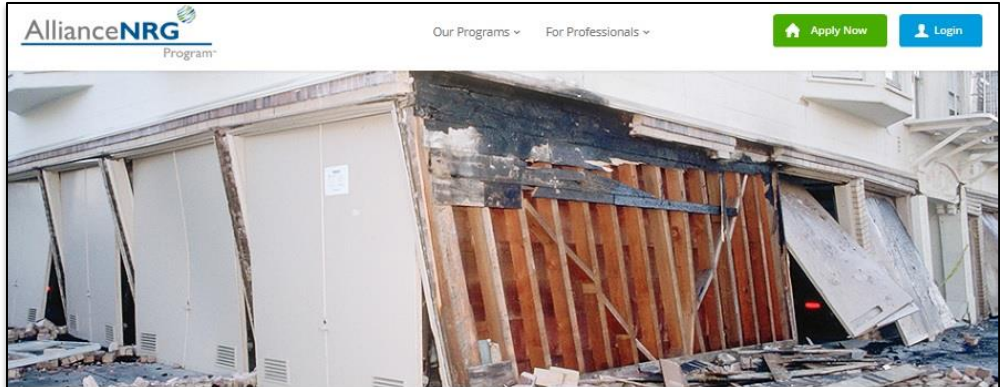
While these types of buildings and their associated risks are found in every neighborhood in San Francisco, they are most commonly found in the following districts: Mission, Western Addition, Richmond, North Beach, and the Marina.

Exclusive partner with the City and County of San Francisco for the Mandatory Soft Story Retrofit Program

The Association of Bay Area Governments estimates that soft-story residential buildings will be responsible for 66 percent of the uninhabitable housing following a seismic event on the Hayward fault.

To ensure the safety of the property owners and their tenants, San Francisco adopted a new ordinance, which established a Mandatory Soft Story Retrofit Program.

Ordinance No. 66-13



*Building Safer Communities Together*  
*Financing The Future Of Energy Efficiency And Seismic Safety*



#### 100% Retrofit Financing

SF ESIP joins with AllianceNRG Program to offer 100% financing of your seismic retrofit for 20 years- no balloon - financing only your project not your whole building.



#### Retrofit Using An Assessment

AllianceNRG Program financing is a municipal tax assessment which is levied on your property and paid with your regular property taxes



#### Engineering Cost Coverage

The AllianceNRG Program can provide up to \$20,000 for project development and seismic engineering costs.



#### Transferable To New Owner

AllianceNRG financing may be transferred to a new owner if you decide to sell your property without relying on the credit of the new owner.





## CITY & COUNTY OF SAN FRANCISCO



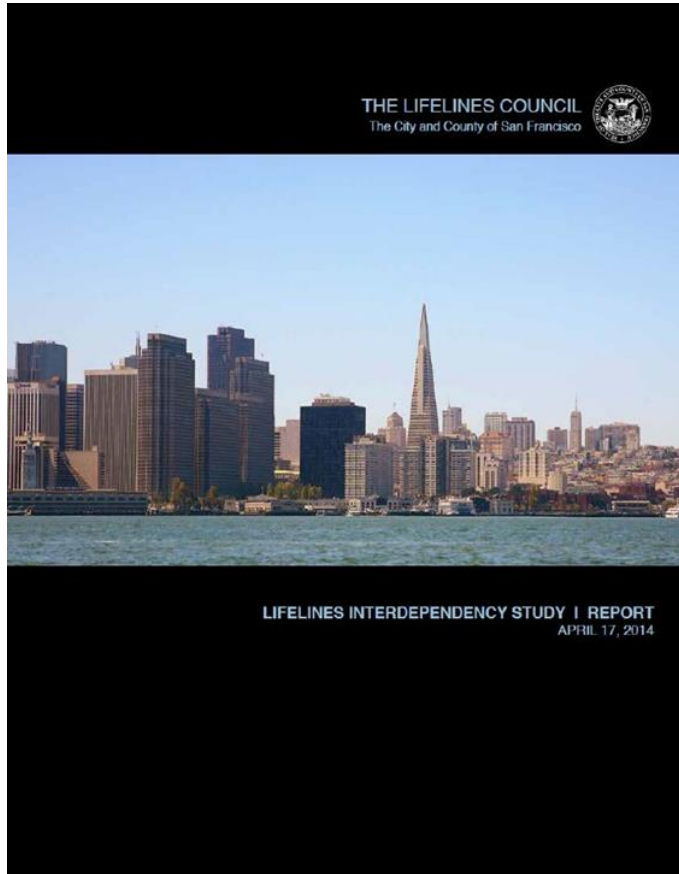
**The EPICENTER** is a pop-up collaborative space for earthquake policy research and development. The center, a project of the San Francisco City Administrator's Earthquake Safety Implementation Program (ESIP), is aimed at engaging the public, working directly with design professionals, and the hands-on development of effective and innovative public policy aimed at reducing the impacts of earthquakes on San Francisco.

**The EPICENTER** strives to promote an effective, well-managed public sector and nurture a climate of civic engagement (SPUR, Good Government) by connecting professionals, policy makers, and the community in one space to ask the question: How can we make San Francisco safer from earthquakes tomorrow than it is today? Our mission, then, is simple: to collaborate, to innovate, and to educate.





# CITY & COUNTY OF SAN FRANCISCO LIFELINES COUNCIL



## 2015 Quarterly Meeting

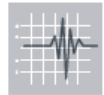




# CITY & COUNTY OF SAN FRANCISCO

## RESILIENT SF

We face several interconnected challenges:



### EARTHQUAKES

There is a 76% chance the Bay Area will experience a 7.0 magnitude earthquake

in the next 30 years. Even the relatively moderate and distant 1989 Loma Prieta Earthquake (6.9) caused substantial damage to our city. It is imperative to the survival of San Francisco that we continue working to prepare and recover from the “big one.”



### INFRASTRUCTURE

Infrastructure is central to our daily lives—from the roads and pipes we use

every day, to the larger systems, like food and social networks and housing that we rely on as lifelines. Sometimes these systems continue to operate past their intended life span and sometimes they are inadequate all together to meet the needs of a growing and vibrant city.



### CLIMATE CHANGE

The impacts of global climate change are already being felt in the form of drought

and increasingly severe storm events. We must secure our city’s future through mitigation, while recognizing the likely impacts of climate change by beginning to adapt today rather than when it is too late.



### SOCIAL INEQUITY

San Francisco embraces equality and equity in all policies but this work

is never done. Social equity and inclusiveness needs to be at the core of what makes a city thrive.



### SEA LEVEL RISE

We expect a total in 66” of sea level rise to impact our shores by 2100. As

we plan for the growth of our city, we need to adapt to this challenge that threatens not only our waterfront but also our way of life in San Francisco and regionally.



### UNAFFORDABILITY

Forty-five percent of renters in San Francisco pay more than 30% of their household

income in rent. Median home prices are continuing to rise, making it a challenge for first time home buyers. San Francisco is becoming out of reach for many of the people who made the city what it is today.



# CITY & COUNTY OF SAN FRANCISCO RESILIENT SF

GOAL 1: Plan and Prepare for Tomorrow

## GOAL 1 PLAN AND PREPARE FOR TOMORROW

### ACTIONS:

To meet this goal, we will:

1. **Prepare** Today for San Francisco's Recovery
2. **Advance** Innovations in Earthquake Preparedness
3. **Invest** in Infrastructure and Transportation for our Growing City



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City and County of San Francisco

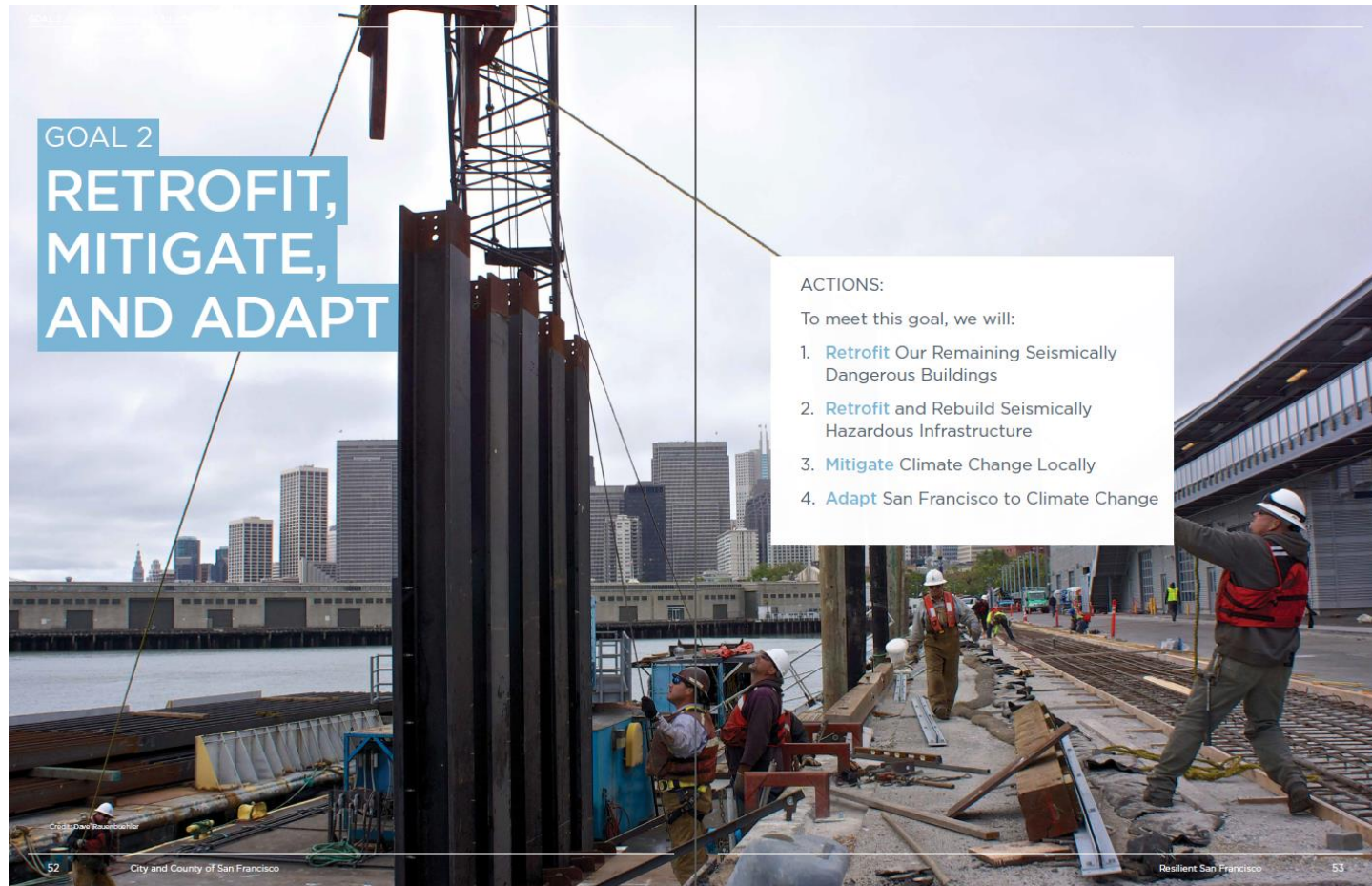
Resilient San Francisco

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# CITY & COUNTY OF SAN FRANCISCO

## RESILIENT SF





# CITY & COUNTY OF SAN FRANCISCO

## RESILIENT SF

GOAL 3: Ensure Housing for San Franciscans Today and After a Disaster

### GOAL 3

# ENSURE HOUSING FOR SAN FRANCISCANS TODAY AND AFTER A DISASTER

#### ACTIONS:

To meet this goal, we will:

1. **Build** a Strong Housing Recovery Starting Today
2. **Enhance** Systems to Rapidly House San Franciscans
3. **Strengthen** Housing Now to Prepare Us Better for Tomorrow.

Credit: Davo Rausenbacher

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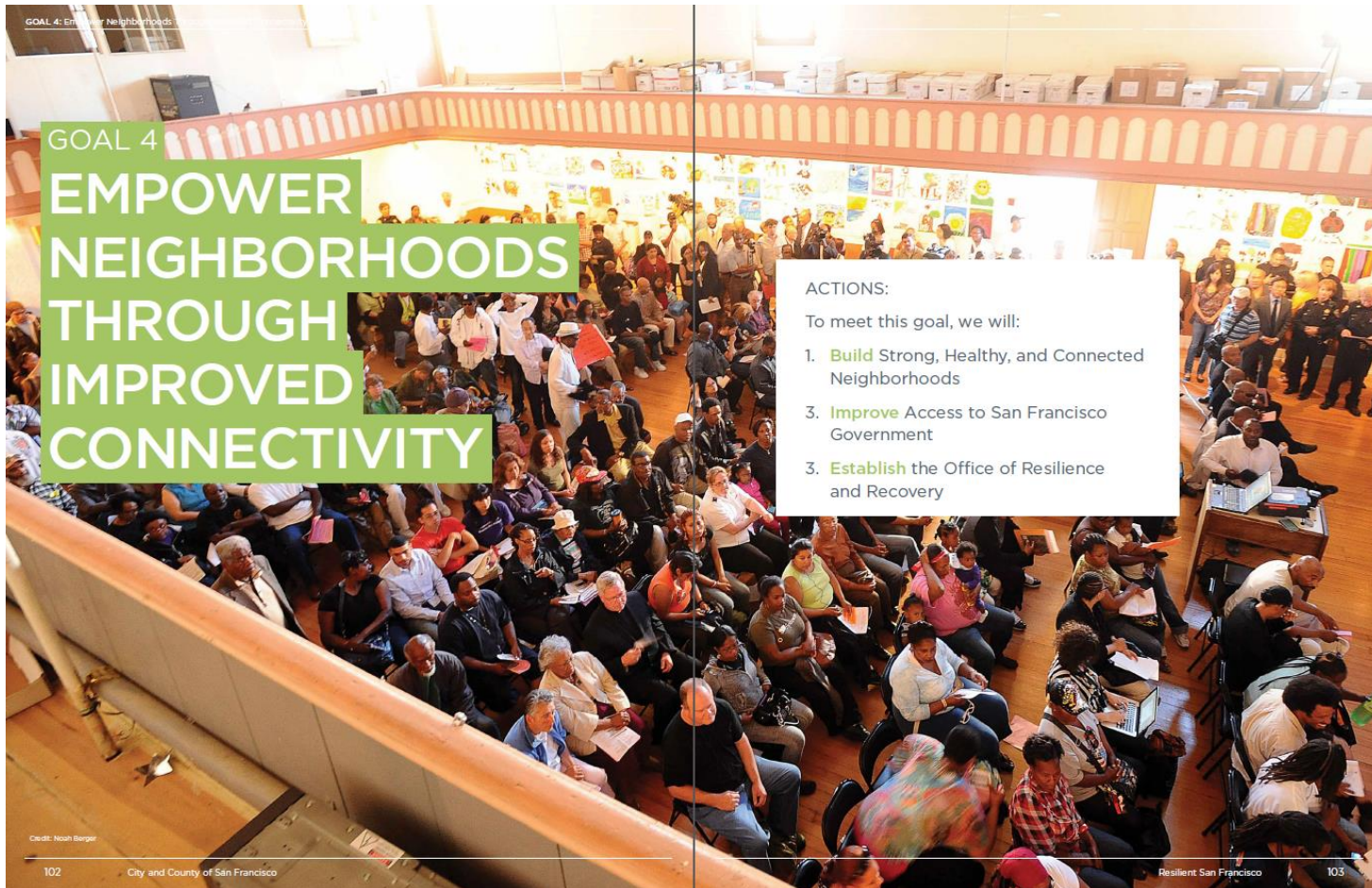
City and County of San Francisco

Resilient San Francisco

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# CITY & COUNTY OF SAN FRANCISCO RESILIENT SF



GOAL 4: Empower Neighborhoods

## GOAL 4 EMPOWER NEIGHBORHOODS THROUGH IMPROVED CONNECTIVITY

### ACTIONS:

To meet this goal, we will:

1. **Build** Strong, Healthy, and Connected Neighborhoods
3. **Improve** Access to San Francisco Government
3. **Establish** the Office of Resilience and Recovery

Credit: Noah Berger



# CITY & COUNTY OF SAN FRANCISCO RESILIENT SF

## SUPPORTING INITIATIVE 2.9

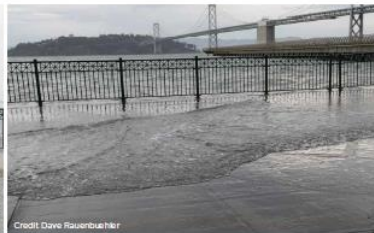
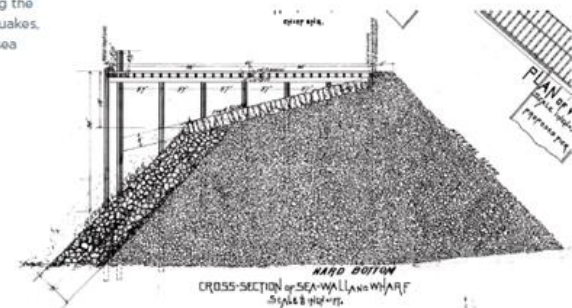
### Earthquake Vulnerability Study of the Northern Waterfront Seawall

As part of the Port of San Francisco's effort to improve waterfront resiliency, we will undertake an Earthquake Vulnerability Study of the Northern Waterfront Seawall. The Northern Waterfront Seawall, or Great Seawall, stabilizes over three miles of historic waterfront and hundreds of acres of filled land stretching from Fisherman's Wharf to Mission Creek. This area includes significant Port and City assets, such as the Historic Piers, Ferry Building, Embarcadero Promenade and roadway, Ferry & Cruise Terminals, BART Transbay Tube, MUNI light rail, and utility infrastructure. The high-level study, which is nearly complete, will assess earthquake vulnerability, predict damage and economic impacts from a range of earthquake events, develop conceptual mitigation alternatives, and make recommendations for further action and study. This information will inform the Port's Strategic Plan, as well as its efforts to improve lifeline resiliency and respond to climate change and sea level rise.

## INTEGRATION



The Port of San Francisco, The Earthquake Safety Implementation Program, and the Sea Level Rise Coordinating Committee, through the Public Works and Planning Departments, are working in concert to build a truly resilient waterfront, weighing all variables, including the impacts of earthquakes, liquefaction, and sea level rise.





# CITY & COUNTY OF SAN FRANCISCO

## RESILIENT SF

### INTEGRATION



The Bay Area Resilient by Design Challenge was spearheaded by the City and County of San Francisco, in collaboration with many Bay Area local governments, regional agencies, research institutions, and non-government organizations. Managing partners include: Bay Conservation and Development Commission, Association of Bay Area Governments, Coastal Conservancy, Bay Area Regional Collaborative, SPUR, San Francisco, Estuary Institute, City of San Francisco Planning Dept. and Chief Resilience Officers of Berkeley, Oakland, and San Francisco, and the City of San Jose.

### INITIATIVE 2.14

## Launch Regional Waterfront Design Challenge



The Bay Area Resilient by Design Challenge is a public-private partnership that seeks to pool the talents of the best minds of our region -- experts in ecology, technology, design and social activism -- to

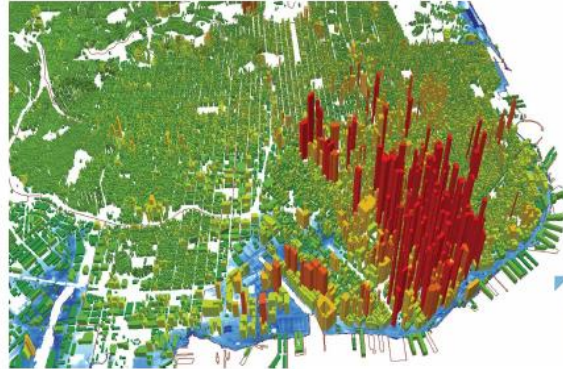
protect and enhance the most vulnerable communities along the Bay's natural built shoreline. Selected teams will conduct intensive research of existing conditions, challenges and opportunities, and will then work with local government, nonprofit and private sector leaders, and community stakeholders to develop design solutions that will help communities adapt to and prepare for the impacts of climate change, such as flooding and drought. This effort will launch on April 18, 2016, in conjunction with the release of this strategy.



Credit: Dave Razonbushier



# CITY & COUNTY OF SAN FRANCISCO RESILIENT SF



Three-Dimensional View of Downtown with 108" Inundation Which Shows Sea Level Rise Expected by 2100 Combined with 100-Year Storm.

## INITIATIVE 2.13

### Develop a Sea Level Rise Adaptation Plan



Early this year, the City released its Sea Level Rise (SLR) Action Plan. Building on significant and collaborative prior work, it defines an overarching vision while putting forth key objectives for SLR planning in San Francisco. It summarizes current climate science,

reviews relevant policies and regulations, and estimates the cost of inaction. It also identifies data gaps, and establishes an aggressive framework for further assessment, adaptation planning, and implementation. Among other key steps, the Action Plan calls for the Planning Department to develop a comprehensive citywide adaptation plan by summer 2018.

## INTEGRATION



This action plan was accelerated in partnership with Risk Management Solutions (RMS) and funding support from 100 Resilient Cities, a 100RC Platform Partner. RMS provided sea level rise modelling expertise and helped the City complete an exposure analysis of both public and private assets in the City and County of San Francisco.



100 RESILIENT CITIES



CITY & COUNTY OF SAN FRANCISCO  
"MAKING SAN FRANCISCO SAFE ENOUGH TO STAY"

 **CAPSS**

 **ESIP**

 **EPICENTER**



[www.sfgov.org/ESIP](http://www.sfgov.org/ESIP)



[www.facebook.com/sfcapss](http://www.facebook.com/sfcapss)



**EPICENTER**

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