

Bay Area Housing and Community Multiple Hazards Risk Assessment

Stakeholder Workshop 1
April 21, 2014

Association of Bay Area Governments
Bay Conservation and Development Commission



MEETING AGENDA

- 9:00 Welcome
- 9:15 Project Background and Approach
- 9:45 Housing and Community Strategy Development
- 10:15 Q&A
- 10:25 Housing and Community Assessment Showcase – take a break, stand, stretch and visit the maps
- 10:40 *Your* input and feedback on community profiles and strategy development
- 11:40 Wrap up, next steps, adjourn

Project Participants

- Lead agencies: ABAG and BCDC
- Funding agencies: USGS, US EPA, FEMA and the California Strategic Growth Council
- Consultant: AECOM
- Advisory Committee: experts in hazard mitigation, housing risk, and community vulnerability
- Bay Area Stakeholders: public officials, community-based organizations, consultants, academics, interested community members

What is the Project?

- An assessment of housing and community vulnerability to earthquake and flood risks
- Identification of potential consequences of these risks in areas of future high growth
- Selection of community profile areas to refine understanding of vulnerability and support strategy development
- A suite of strategies that incorporate hazard mitigation, climate adaptation, and smart growth approaches

Other ongoing projects addressing natural hazard risks

Project Title	Key Goals	Lead	Timing
Infrastructure Vulnerability and Interdependencies	<ul style="list-style-type: none"> Regional scale Infrastructure system performance Seismic focus 	ABAG	2012-2014
Resilient Shorelines	<ul style="list-style-type: none"> Regional scale Analysis of flooding and seismic risks 	ABAG, BCDC and State Coastal Conservancy	2014-2020
ART Oakland / Alameda Shoreline Resilience	<ul style="list-style-type: none"> Neighborhood scale Analysis of flooding and seismic risks 	ABAG and BCDC	2013-2014



Stakeholder Roles

- Provide input on community profile information and selection criteria
- Review strategy development approach
- Provide feedback on draft strategies and implementation options
- Attend stakeholder workshops
 - ✓ April 21, 2014: Assessment outcomes and strategy approach
 - ✓ June 18, 2014: Draft strategies and implementation options
 - ✓ August 26, 2014: Final strategy recommendations

Project Components and Schedule

Project Initiation – Fall 2013

Assess Vulnerability – Winter 2014

- Develop assessment approach – indicators of hazard, housing and community vulnerability
- Convene advisory committee and break into housing and community working groups
- Gather advisor input and feedback
- Refine approach and complete assessment

Develop Strategies – Spring 2014

- Share assessment outcomes with stakeholders
- Gather input on strategy development approach
- Present draft housing and community strategies
- Refine and complete strategy recommendations

Document and Disseminate Findings – Summer 2104

Project Goals

- Understand the characteristics of Bay Area housing and communities that increase vulnerability to earthquakes and flooding
- Assess housing and community vulnerability at two scales – regional and community profile
- Develop strategies that reduce housing and community vulnerability to help the region meet resilience, sustainability, prosperity, and equity goals in a safe and smart manner

Why housing and communities?

Recovery from a major hazard event depends on whether people are able to stay in their homes

If people can stay in their homes they will be better able to participate in rebuilding neighborhoods and cities, better able to go to work and support local business, and better able to support the recovery of the entire region



Why housing and communities?

Improving the region's understanding of housing and community characteristics that contribute to vulnerability is a critical step towards developing resilience and recovery strategies



How the Project Assessed Vulnerability

- Selected hazards to evaluate
- Identified housing and community characteristics that reduce recovery after a major hazard event
- Evaluated Bay Area housing and communities at a regional scale based on available data
- Using the regional screening to select community profiles for further evaluation with locally available data and insight

Hazards

- Ground Shaking
- Liquefaction
- Current and future flooding



Housing

Housing types most likely to have poor structural performance if subjected to hazards



Eight vulnerable types identified using regionally available data:

- Single family cripple wall
- Single family house over garage
- Unreinforced masonry
- Multi-family cripple wall
- Multi-family weak story or open front
- Multi-family non-ductile concrete
- Insufficient foundation to withstand liquefaction
- Any house in a flood zone

Communities

Characteristics that reduce the ability to prepared for, respond to, and recover from earthquakes or flooding

Ten vulnerability characteristics with regionally available data:

- Age
- Education
- Household income
- Race/culture
- Non-English speakers
- Home ownership
- Housing cost burden
- Transit dependence
- Transportation cost burden



Putting it all Together: Regional Assessment Outcomes

Fragile Housing

- Housing with characteristics that make them likely to be damaged in areas potentially exposed to ground shaking, liquefaction, current or future flooding

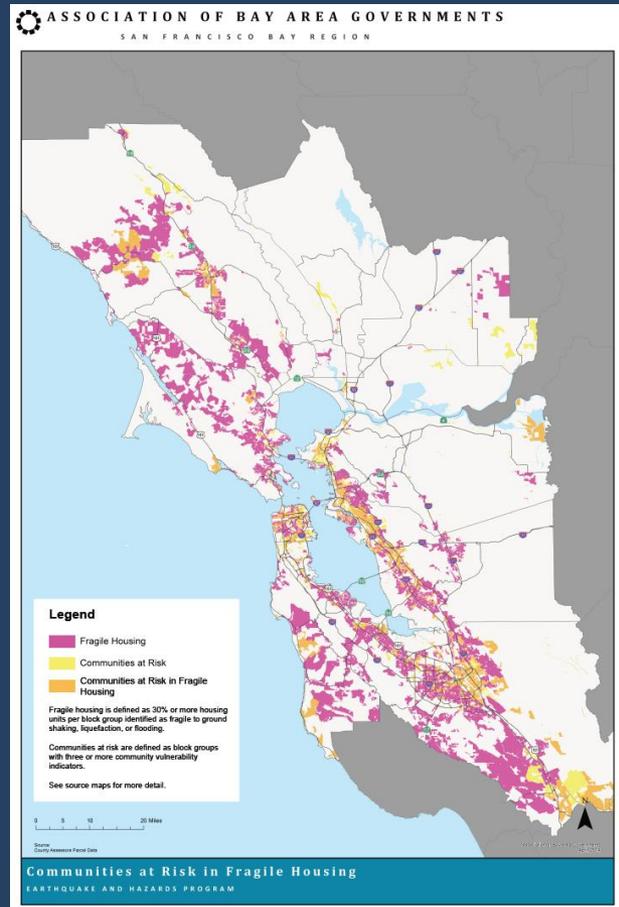
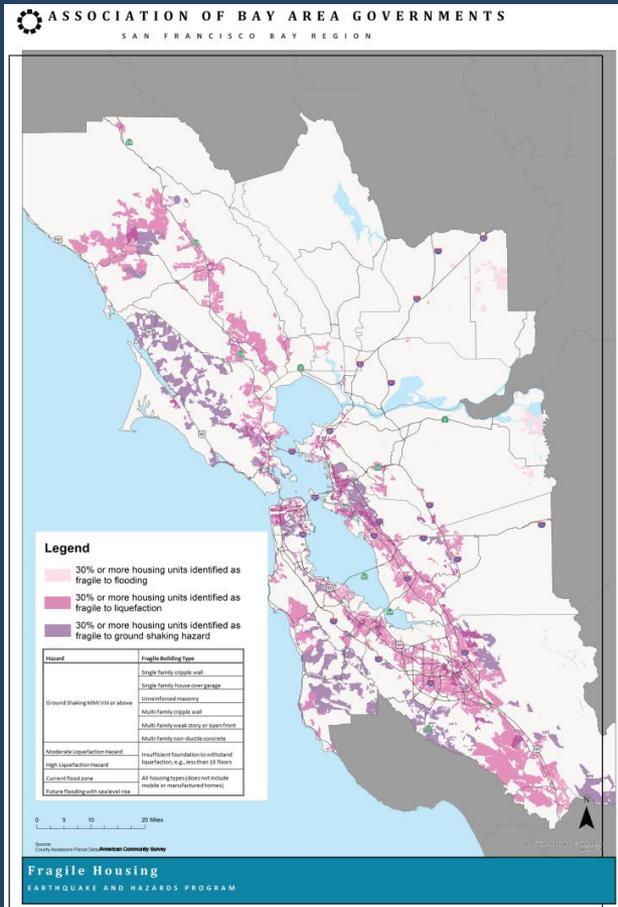
Communities At Risk

- Communities with characteristics that make them likely to be less able to prepare, respond and recover in areas potentially exposed to ground shaking, liquefaction, current or future flooding

Communities At Risk in Fragile Housing

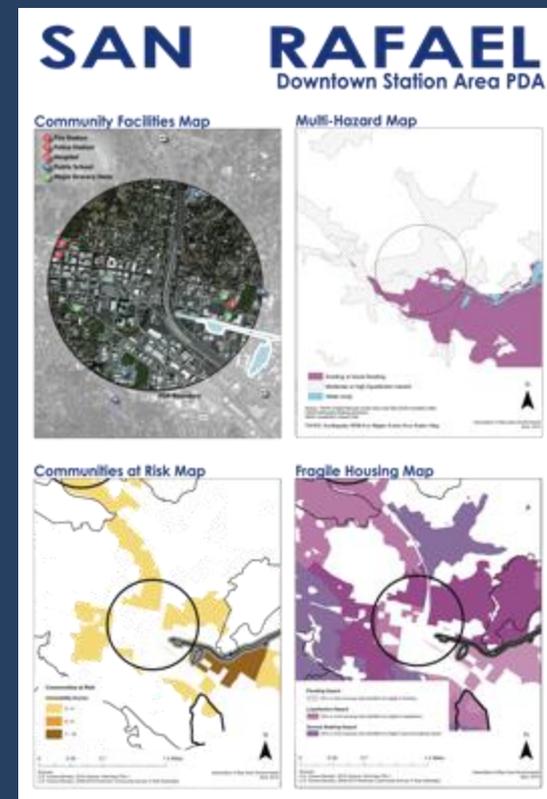
- Communities likely to be less able to prepare, respond and recover that potentially to live in fragile housing.

Regional Assessment Maps



Zooming in: Developing Community Profiles

- To refine the understanding of hazards, housing and community vulnerability using local data and knowledge
- To inform strategy development for existing housing and communities, redevelopment, and new development in areas designated for future growth



What will be included in the community profiles?

- ✓ Site-specific hazard exposure
- ✓ Detailed community demographics
- ✓ Specific housing information, e.g. building material, retrofit status, mobile homes
- ✓ Community assets, e.g., fire stations, community centers
- ✓ Community capacity, e.g., neighborhood groups, civic organizations, CERTS/NERTs
- ✓ Projected growth and development, e.g., new housing units, jobs, transit, infrastructure, parks
- ✓ Demographic trends and projections

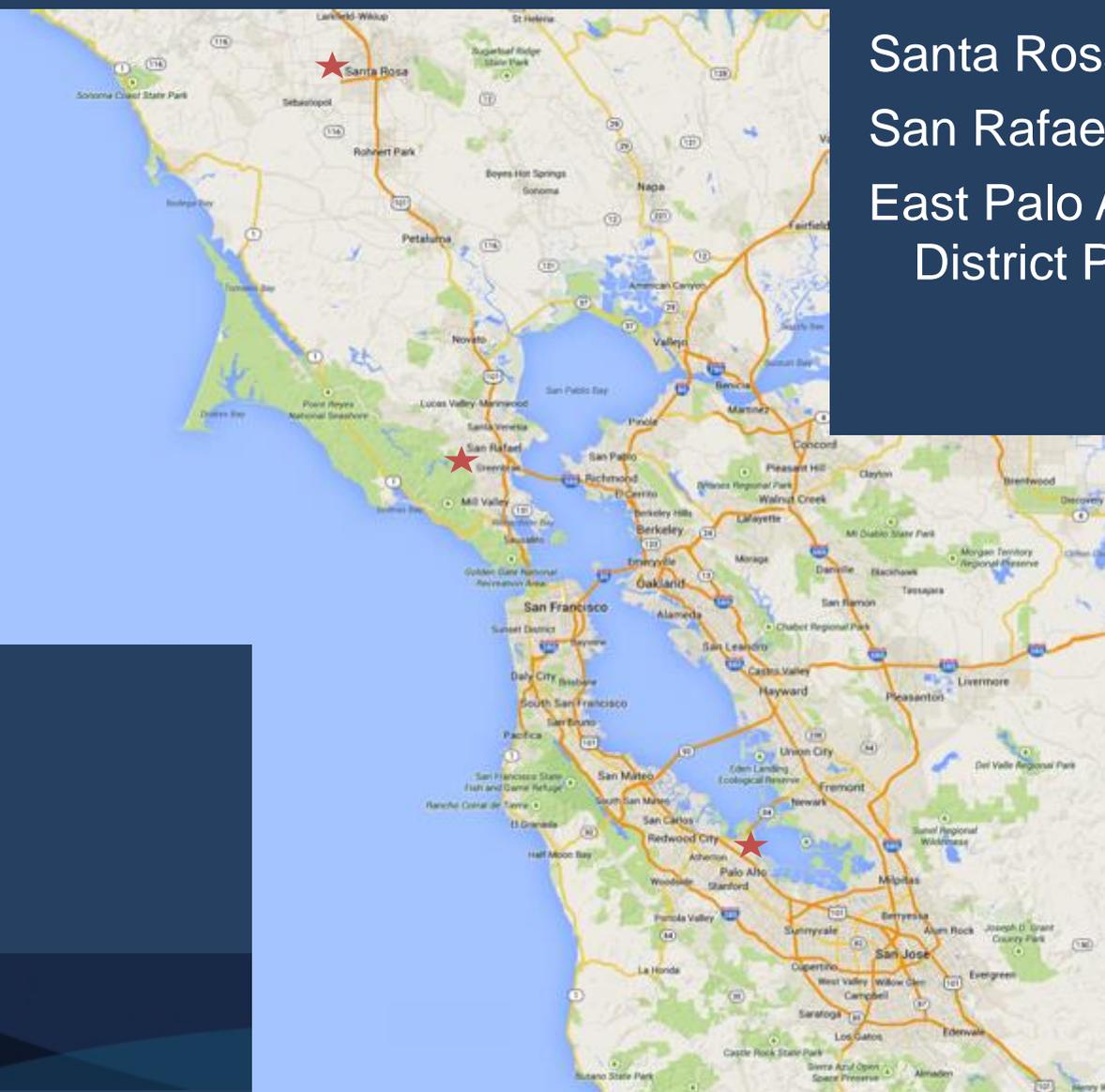
Selecting Communities to Profile

Based on criteria such as:

- Different combinations of hazard exposure, fragile housing types, and community characteristics
- A mixture of existing housing and planned future growth
- Availability of local data
- Local interest and willingness

Example Community Profiles

- Santa Rosa Roseland Area PDA
- San Rafael Downtown Station Area PDA
- East Palo Alto Ravenswood Business District PDA



Sample Community Profile

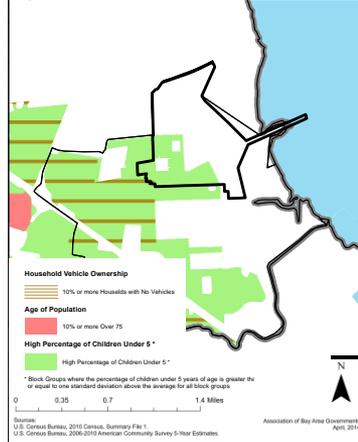
East Palo Alto Ravenswood Business District PDA

- Hazards: ground shaking and moderate to high liquefaction, flooding along eastern boundary
- Vulnerable housing: building types fragile to liquefaction (<10 stories) and flooding (all)
- Community characteristics:
 - Entire PDA: low income and educational attainment
 - Southern portion: high % renters, children under 5 years, >70% non-white, > 20% non-english speakers
 - Northern portion: mostly owners, housing and transportation cost burdened, >70% non-white

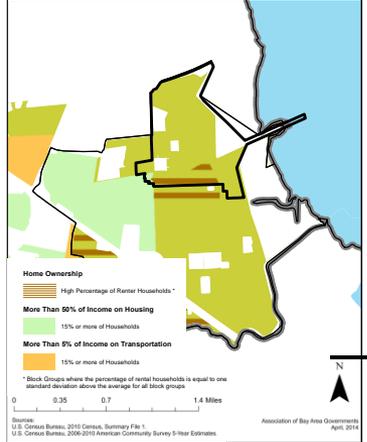
EAST PALO ALTO

Ravenswood Business District PDA

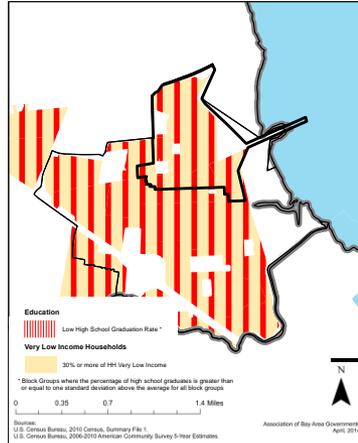
Age Characteristics & Car Access



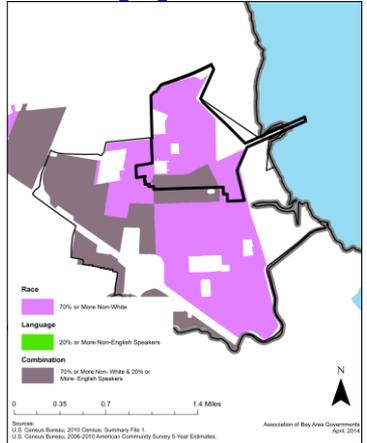
Residence & Transportation Cost Burdened



Education Attainment & Low Income



Race & Language Characteristics



EAST PALO ALTO

Ravenswood Business District PDA

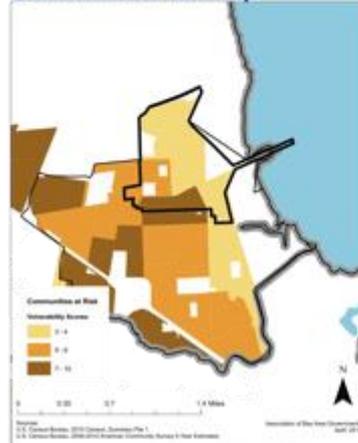
Community Facilities Map



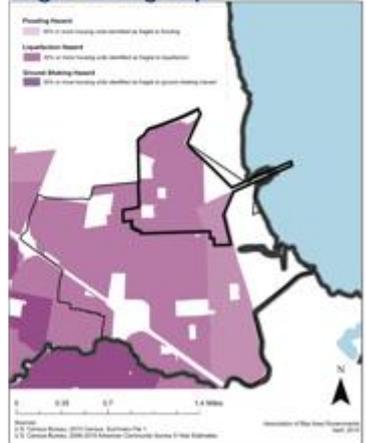
Multi-Hazard Map



Communities at Risk Map



Fragile Housing Map



Housing and Community Strategies

- Develop a suite of strategies that can help the region meet resilience, sustainability, prosperity, and equity goals
- Strategies for existing housing and communities and for new and redeveloped housing in future high growth areas



Relationship between strategies for existing and future high growth areas:

- Many strategies may apply to existing, new and redeveloped housing
- Some strategies may need to be modified or refined for existing housing
- Others strategies will be needed that consider the recovery and resilience of existing communities



Strategy development approach

1. Review regional assessment outcomes and community profiles
2. ABAG/BCDC develop draft strategies with assistance from US EPA, FEMA and AECOM
3. Share draft strategies and implementation options with broad group of stakeholders (workshop 2)
4. Final strategies based on stakeholder input (workshop 3)
5. Finalize, document and disseminate recommendations



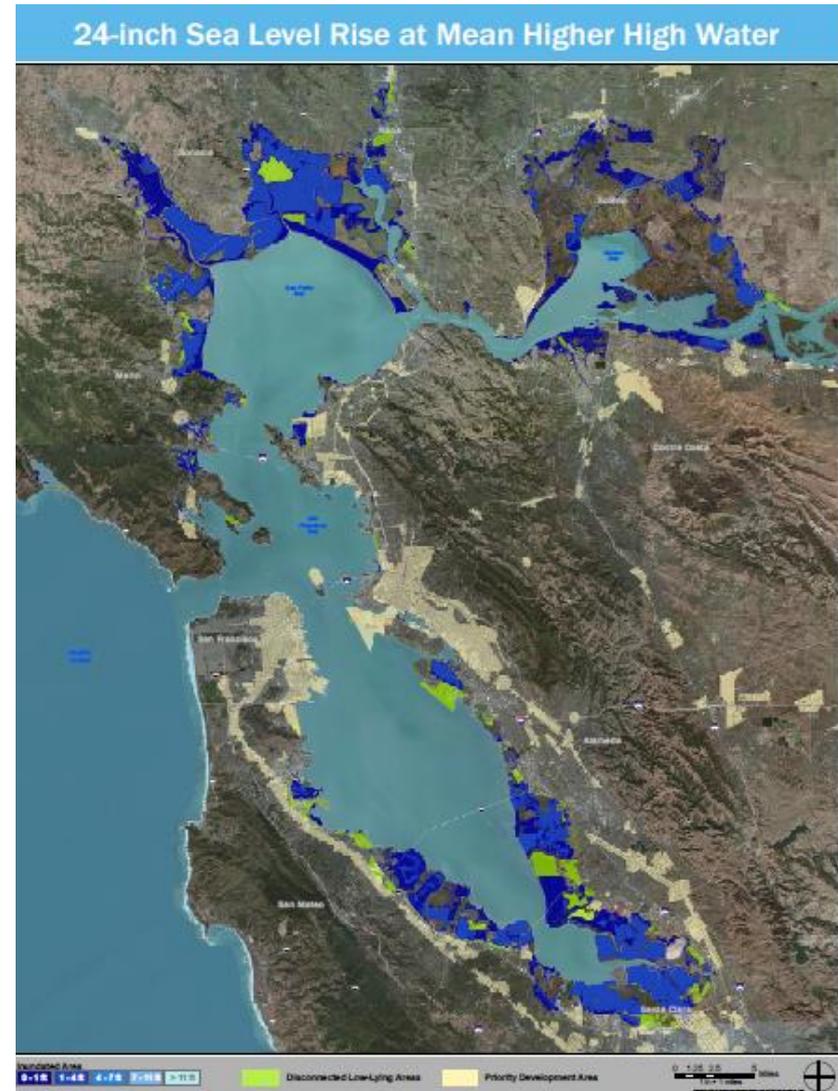
Strategy Development



EPA ABAG Safe Growth Strategies Strategy Characteristics, 21st April 2014

Strategies for “Safe, smart growth in PDAs”

- Strategies are focused on mitigating earthquake and sea level rise related impacts on future residential mixed use development areas.
- Strategies focused on growth may also provide benefits to existing vulnerable populations and housing
- Strategies will respond to the case study vulnerability profiles



Developing Strategies for “Safe, smart growth in PDAs”

Hazard + Vulnerability addressed



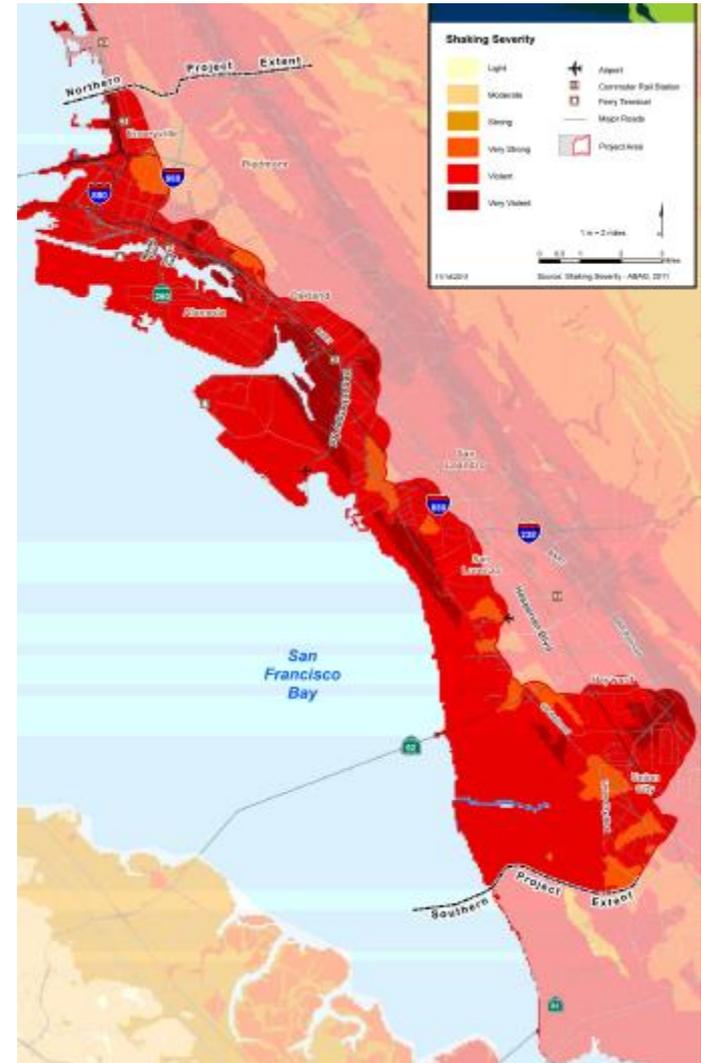
Key characteristics



Sustainability co-benefits

What issues are the strategies addressing, in addition to growth?

- Hazards
- Community & Housing Vulnerabilities
- Note: These will be based directly on the ABAG/BCDC Vulnerability Assessment



Hazards & Vulnerabilities Addressed

- **Hazards:**

- Flooding
 - Current, 100-year flood zone
 - Future, SLR 24”
 - Future, SLR 36”
 - Future, SLR 48”
- Liquefaction
 - moderate hazard
 - high hazard
- Ground shaking (MMI VIII or above)

Note: a strategy may address more than one hazard.



Hazards & Vulnerabilities Addressed

- **Vulnerabilities:**

- Community vulnerability
- Vulnerable housing

Notes:

- *All strategies will address new development whether redevelopment, infill, conversion, densification etc.*
- *A strategy may address more than one vulnerability.*



Key Characteristics

These are key elements of each strategy such as its scale, funding mechanisms, etc., and will help stakeholders with strategy formulation:

- Scale of strategy
- Owner /implementer of strategy
- Strategy class
- Potential funding mechanisms to support implementation and on-going maintenance or enforcement
- Governance/Implementation issues

Key Characteristics

- **Scale of strategy:**

- Regional
- County
- City
- Neighborhood / zone (could include a Specific Plan area)
- Building / lot

Note: a strategy may address a combination of the above (a strategy maybe for new housing within a particular neighborhood/zone)



Key Characteristics

- **Owner / implementer of strategy:**
 - City department (specify which)
 - Regional agency (e.g. ABAG or MTC)
 - Federal agency (e.g. HUD, FEMA, USACE)
 - Developer
 - Utility provider
 - Transportation provider (Caltrans, BART, other)
 - Community partners / Not for Profits
 - Other

Note: a number of agencies may be involved in implementation / development of a strategy

Note: developer – a planning applicant may not actually construct the proposed project and that some building details may not be known at the time of planning entitlement.

Key Characteristics

- **Strategy class (examples only!)**

- Building standards e.g.**

- Special building construction provisions

- Development regulations e.g.**

- Zoning ordinances;
 - Shoreline setback /buffer regulations;
 - Geological hazard abatement districts;
 - Rebuilding restrictions;
 - Conditional development;



Key Characteristics

- **Strategy class continued**

- Critical and public facilities policies e.g.**

- Comprehensive planning;
 - Capital improvements policies;
 - Location of robust public facilities in hazard areas;
 - Provision of utility infrastructure;
 - Infrastructure upgrades

- Land and property acquisition e.g.**

- Acquisition of open space, recreation, undeveloped land for mitigation;
 - Acquisition of damaged buildings in hazard areas;
 - Real estate disclosures

Key Characteristics

- **Strategy class continued**

Taxation and fiscal policies e.g.

- Insurance related;
- Financing (loan) related;
- Transferable development credits;
- Development impact fees

Communication & information dissemination e.g.

- Construction practice seminars,
- Planning practice seminars,
- Public outreach and education

Key Characteristics

- **Strategy class continued**

Transportation e.g.

- Increase transit services to new defined level of service

Other e.g.

- Funding of civic organizations



Strategy Key Characteristics

- **Potential funding mechanisms**; e.g.
 - To be determined (once strategies are identified)

Key Characteristics

- **Governance/ implementation:**
 - Does the strategy need the input of multiple agencies to implement?
 - Does the strategy require new regulation/legislation to be put in place (state or local)?
 - Does the strategy require additional resources to monitor and enforce compliance?



Strategy Sustainability Co-benefits

These will be used to identify the extent to which a strategy supports goals for a PDA beyond building resilience to sea level rise and earthquake:

- **Environmental** - Does the strategy provide positive impacts for natural resources and ecosystems?
- **Social** - Does the strategy help protect vulnerable populations?
- **Economy** - Does the strategy provide long term economic benefits?

Strategy Sustainability Co-benefits

- **Environmental:**

- **Does the strategy create/protect habitat?**

- e.g. Yes - acquisition of open space; green infrastructure; living levees*

- **Does the strategy effect flood impacts on adjacent land/property?**

- e.g. Yes - shoreline defense strategies*



Strategy Sustainability Co-benefits

- **Social:**

- Does the strategy provide for **vulnerable populations?**

e.g. Yes - location of robust public service facilities in hazard area

- Does the strategy increase access to **transit?**

e.g. Yes - Increase transit services to new defined level of service



Strategy Sustainability Co-benefits

- **Economic:**

- **Does the strategy have impacts on property tax revenues?**

- e.g. acquisition of undeveloped land for mitigation (forego future property tax revenues); shoreline protection that will decrease flood risk (and maintain or improve property values)*

- **Does the strategy increase cost of development?**

- e.g. Yes - special building construction provisions*

- **Are there avoided economic losses from implementing the strategy? (e.g., assets protected, jobs retained)**

- e.g. Yes - infrastructure upgrades, shoreline protection*

Your input

– Questions?

More discussion to come during breakout groups.

Housing and Community Assessment Showcase

Wrap Up and Next Steps

- Final Questions?
- Stakeholder Workshop #2 - June 18, 2014
Draft strategies and implementation options
- Stakeholder Workshop #3 - August 26, 2014
Final strategy recommendation

For more information about the project visit:
quake.abag.ca.gov/projects/housing-and-community-risk