

ABAG Regional Planning Committee Infrastructure Subcommittee Meeting #2

Bay Area Metro Center, San Francisco

September 14, 2016 9:30 a.m. – 11:30 a.m.

Participants

Mike Ambrose, EBMUD

Erin Baker, SCVWD

Mark Boucher, Contra Costa Flood Control & Water Conservation District

Phil Brun, City of Napa

Timothy Burroughs, City of Berkeley

Colter Anderson, Zone 7 Water Agency

Craig Dziedzic, UASI

Diana Gaines, Zone 7 Water Agency

Joshua Gale, SFPUC

Dale Jacques, Santa Clara Valley Water District

Ted Johnson, CalOES

Supervisor Karen Mitchoff, Contra Costa County

Jacob Reed, ACWD

Corey Reynolds, UASI

Catherine Spaulding, UASI

Mayor Jill Techel, City of Napa

Sara Whatley, Zone 7 Water Agency

Jim Wollbrinck, San Jose Water

Lori Wyatt, Sonoma County Water Agency

Janell Mhyre, UASI

Michelle Novotny, SFPUC

Maureen Martin, CCWD

Weston Starbird, City of San Jose

Edgar Castor, DHS - IP

Sarah E. Gambill, DHS - IP

Duane Bay, ABAG

Ezra Rapport, ABAG

Duane Bay, ABAG

Arrietta Chakos, ABAG

Michael Germeraad, ABAG

Asavari Devadiga, ABAG

Natasha Dunn, ABAG

Common Themes

- There is quite a bit of work done regionally to build resilient water systems. Resilience work in terms of seismic retrofitting of large facilities and transmission systems has been underway by water agencies. However, distribution networks are provided by a diverse group of cities, and districts
- During emergencies, coordination of different aspects such as what service is needed, how to provide it, who will provide it, who the lead will be, need to be discussed further. EBMUD and Berkeley initial work could be a helpful pilot for the region.

- Complexity of relations (water wholesalers have different relationship with cities / residents than retailers). Need ways to communicate well between different stakeholders – both before and after an event.
- There are also areas where coordination could be more effective – say when streets are excavated for improvements or utility work; for sharing energy sources; for scaling up efforts that are now individually initiated by Cities such as Berkeley and San Francisco on water and energy.
- Can't explore only water. Need to think of both water and wastewater together and cannot think of them separately. The Regional Lifelines Council could provide a forum to discuss this further.
- There is a need for data sharing and ground truthing of technical analysis. The Regional Lifelines Council could provide a forum to discuss this further.
- Need to think about how to support the smaller cities and districts that don't have the same level of resources.
- Need to be realistic with what is possible with the funding currently committed to these challenges.

Meeting Minutes

Supervisor Mitchoff (Contra Costa): Welcome, Brown Act requirements

Duane Bay (ABAG): Welcome, poll of who was here last meeting – more than half the participants were not here last time. Introduced himself, round of introductions from the group

Duane Bay (ABAG): We are in the middle of a 4 part process with the end result of a Lifelines Council – a forum for joint problem solving between utility districts, cities, etc. This forum doesn't exist currently. There is a very serious problem of service continuity. There is a vacuum for a facilitated problem solving forum among the many agencies.

Reviewed last meeting topic of long term water supply; today's topic is water delivery following an earthquake, and the October 12th topic is focused on the structure of Regional Lifelines Council. Let's jump into preliminary presentations and then an hour of discussion with a little discussion at the end about a Lifeline Council.

[Bay area risk and global case study presentation – see powerpoint slides at end of minutes]

Michael Germeraad (ABAG): Earthquake magnitude is log scale, difference in energy between at 5.0 and 7.0 is 1000 times. The region before the 1906 earthquake was much more seismically active – the region grew by 4 million during a stretch without any large earthquakes. Past earthquakes have shaken the region. Their magnitude and epicenter locations result in very different outcomes for most in the region. Hayward and San Andreas fault scenarios offer the worst case for the majority of Bay Area residents, but as was seen in Napa, local earthquakes can be very damaging in one or two counties. USGS scientists project a 72% chance of an earthquake over M6.7 over the next 30 years.

Kobe, Japan case study. Researchers recognized citizens without water for one week were understanding, after two weeks - frustrated, three weeks - angry, and four weeks desperate. Goal is now 4 week restoration so that people don't face desperation

Concepcion, Chile case study. Restoration was initially slow because of civil unrest and limited fuel. But once those barriers were solved restored service quickly.

Christchurch, New Zealand case study. Sequence of 2010 and 2011 earthquakes produced vast liquefaction which was extremely damaging to infrastructure. Residents wanted to stay at home. Porta-potties set up and hot showers. Provided a sufficient enough *level of service* for residents to shelter in place. United States' commodity point of distribution (POD) technique practiced by UASI could be used similarly.

Mike Ambrose (EBMUD): How is restoration defined? Water to a house?

Michael Germeraad (ABAG): To a customer

Jim Wollbrinck (San Jose Water Company): Any information on pipe system in Japan and New Zealand and how they compare, so that we can use them as a model?

Michael Germeraad (ABAG): Both countries have similar codes and standards. They now use flexible pipes and connections, but before Kobe had similar pipes to the US. Some of the best systems are coming from Japan. Los Angeles is using Japanese seismic resistant pipe in new retrofit schemas.

Jim Wollbrinck (San Jose Water Company): In the area of fuel and resources [in Concepcion], how did they get fuel into those areas? I think that's going to be a big issue following an event.

Michael Germeraad (ABAG): Don't have an answer to that.

Colter Anderson (Zone 7): So what was the size of the original population served?

Michael Germeraad (ABAG): These earthquakes occurred in metro regions of about a million people, so 10% is 100,000 people without service after 4 or 5 weeks.

Supervisor Mitchoff (Contra Costa): Mike Ambrose from EBMUD and Timothy Burroughs have an example of how they've been thinking about water delivery following earthquakes

[local testimonials]

Mike Ambrose (EBMUD): A little history: EBMUD internally got together years ago and realized in an earthquake situation, we would be focusing on fixing pipes and identifying breaks, and couldn't focus on distributing temporary water. We have not communicated well with cities about what we can do after an earthquake. Like FEMA, we've told customers to keep 3-7 days of water, but we haven't communicated well with our customers about what happens after 7 days. We've had one meeting with Berkeley but we need to id cities and counties

before an earthquake and provide support immediately while assisting in coordinating restoration over time. We'd like an MOU or a plan about what the cities and EBMUD will be doing over time.

Timothy Burroughs (Berkeley): Thanks for the response Mike, and we value the coordination. Learning a lot and realizing you can never be too prepared w/ infrastructure before the next earthquake. We've been working with EBMUD to coordinate. It would be great to broaden the conversation to other cities. Other cities should be able to learn from this. We need to be able to incorporate infrastructure improvements in that as well. And finally, this all takes money, so we could bring other agencies, public/private partnerships, etc. to bring some funding to the table for some of these infrastructure upgrades

Supervisor Mitchoff (Contra Costa): Let's hear from Corey Reynolds next.

[Urban Areas Security Initiative's Report on Yellow Command – see powerpoint slides at end of minutes]

Corey Reynolds (UASI): Introduced UASI. Each year we do a regional exercise to find what are the most critical gaps to the region? This year: supply chain security and integrity, infrastructure systems, and cyber security.

This year, we looked at water. We looked at what relationships exist across agencies. Gaps in understanding water systems, who provides water. We were excited about the barcode that was created by ABAG. This all drove us to dive deeper into water systems. Commodity points of distribution are a typical way of providing water following a disruption.

Supervisor Mitchoff (Contra Costa): Would this be similar to what is happening in Florida and the South with all the flooding?

Corey Reynolds (UASI): Yes, this comes from hurricane country; one main difference is that the South East activates these pods for 5 or 6 days – we'd need them for months maybe.

We spent the better part of this year to understand water distribution around the bay area. In early June we held a table top with OES, EBMUD, CalOES, and others. One page summary at the end of the meeting packet outlines the summary findings.

This all led to the yellow command exercise as part of a larger Urban Shield event. This year's focus was distributing water to 1.8 million households. 15 emergency operation centers, and 3 full scale PODs activated

During the event staff from across the region went over the operational coordination, integration of water utilities, info sharing, resource sharing – how do we get the water here; public info; mass notification; regional communication. Also gave us the chance to test a regional response plan. Standardized POD planning with LA in anticipation of mutual aid across the state (LA staff came up here to participate).

It gave us a test of 3 full scale commodity POD activations: Oakland (pedestrian), Solano County (vehicle designed to serve 20000), South San Francisco (designed to serve 5000 people). Also tested how to staff, how to lay them out, forecasting and strategic planning, how to meet the needs of everyone, how to communicate, what sort of data do we need, how to deal with security, off-loading, site hazard and safety assessments. Third,

cyber security was one of the gaps. We worked with NCRIC on intelligence and info sharing. As part of the exercise, Palo Alto had a cyber attack and played along, and NCRIC assisted with that.

Our next steps are to produce an after action report; pulling together a planning kit for cities; engaging our planning group for next year – will focus on sheltering and a need for fuel to operate those shelters. Look forward to working with ABAG.

Diana Gaines (Zone 7): In regard to info sharing during the exercise – what system was used? webeoc or other methods?

Corey Reynolds (UASI): 3 major (runners from eoc into the field, conference calls), WebEOC, and a program that maps incidents so that all EOCs are seeing same information; mutual link system that integrates video sharing and info that can be made available

Diana Gaines (Zone 7): Any lessons learned?

Corey Reynolds (UASI): Yes, we'll be gathering it together. Need integration; heard a lot of specific feedback on the information systems. More operationalization of these systems - if you're using only once per year, can be tough

Supervisor Mitchoff (Contra Costa): What is distribution of after action report?

Corey Reynolds (UASI): Generalization will be public; specifics for specific agencies not made public unless agency chooses to make public; working to make distribution widespread. Working with ABAG.

Janell Mhyre (UASI): Information will be available on our website, plus can make sure cities have that link.

Supervisor Mitchoff (Contra Costa): Important to have this info; not sure that this information filters up so policy makers can be involved in water in terms of the delivery side

Lori Wyatt (Sonoma CWA): Who are the policy makers during this - are they invited and how did it happen?

Corey Reynolds (UASI): Depended upon the jurisdiction, it wasn't a regional objective. Some jurisdictions wanted this to be part of their training

Supervisor Mitchoff (Contra Costa): Would be good to have that info for other jurisdictions; in Katrina, water just showed up, but in reality it doesn't really just show up – we need to be informed about how this happens to build capacity locally.

Supervisor Mitchoff (Contra Costa): 1st question (from agenda); went over the prompts, called on Arrietta

Arrietta Chakos (ABAG): Need to start to figure out how we can improve. Lots of great coordination among sectors, but information isn't going across our boundaries. As we talk about the Regional Lifelines Council, how can we focus on this? In June was talking to FEMA at a conference and they said that water is just one of 50 jobs an elected needs to think about.

Good examples can be learned from the SF Lifelines Council as well as from EBMUD and its discussions. Water doesn't just show up; Mike Ambrose brought up some great considerations about who is responsible for what and how they communicate

Mike Ambrose (EBMUD): One of best things we can do is communicate to citizens and customers about what we can do after an event. So that citizens can plan and they're not surprised if they don't have showers after 3 days. EBMUD provides water service and treats waste, but we don't own wastewater collection pipes, cities do. Need wastewater systems to be coordinated beforehand; public health issue if you don't consider how to work those two systems together.

Michael Germeraad (ABAG): Reviewed the *Urban Water Barcode* graphic from the July 27th meeting packet which illustrates the wide variation of city and district responsibility in the region; everyone has a unique situation with providers.

Jim Wollbrinck (San Jose Water Company): will have a hard time getting at this with utilities; don't think there is enough data; San Jose Water and EBMUD have taken a bit of data from USGS about breakage but the data hasn't been ground truthed. We need to have funding for ground truthing and so do other agencies. Would like to use Napa as a model to see if the USGS analysis is accurate. That would give us confidence to do some planning to do some strengthening. I can start planning and put new mains in to serve facilities based on these models. We're struggling about working with good data. Also, we rely on power, telecom, etc. - if power is out, we need fuel for generators – where do we get that? If I don't know what their reliability is, then I can't project restoration – that's why the Lifeline Council would be helpful.

Joshua Gale (SFPUC): From SFPUC as a wholesaler, we're trying to tell customers, that you may not be able to rely on us. We've been building this conversation.

Lori Wyatt (Sonoma CWA): Question for me is couple steps back. Who is the lead in coordination of having these conversations? No consistent approach to who should lead or how. Up in Sonoma County, we have lots of tiny utilities, that don't have the outreach staff. Would look to gov't agencies on taking the lead. How do we put together a group to steer this and then ask these questions.

Supervisor Mitchoff (Contra Costa): this is great, that's our third question. We're hearing this and that you want answers, but we're not quite there yet. As a policy maker we want answers to a number of the questions that are coming up.

Colter Anderson (Zone 7): Zone 7 is a wholesaler that goes to city and special district retailers. We have a quarterly meeting with the emergency operations folks to go over disaster response. We also address the challenges that come up when the State Water Projects allocates less water to our service area.

What we found is that unless the elected officials and GM's said this is important in the 50 lines of business that they deal with, unless that line is in bold and results in resources and buy-in from on top, there isn't going to be coordination. The Zone 7 service area has received support they need from elected.

Napa was a wakeup call -- we know we'll be on our own if there's a disruption. Once we educated our elected, we could have a conversation. Even with the support we received for our work during the drought, there's not enough money dedicated to emergency – emergency is considered superfluous. Some cities don't have dedicated emergency staff, and if they do it may be for only 50% of their time.

Michelle Novotny (SFPUC) – There is disparate capacity to respond. SF has total control. Looking at the *Urban Water Barcode*, there are lots of tiny agencies with limited resources. We as a wholesaler – what's our role to get between cities, San Mateo County and districts? We don't want to be between them but they'll look to us.

Erin Baker (SCVWD) – We're a wholesaler working with retailers on how quick we can restore service, but that doesn't get to how quickly retailers can get water to the customer. Need to know how long can retailers sustain service without our supply.

Arrietta Chakos (ABAG): Question of common expectations. Can districts agree on some expectations and share those with cities in the region. How would districts characterize scenarios in specific magnitude earthquakes? Can that be shared based on length of non-service and how cities can prepare?

Supervisor Mitchoff (Contra Costa): Not sure we need to focus on magnitude, but this is great.

Colter Anderson (Zone 7): In our emergency group, I know where my weakest points are, but magnitude doesn't matter. But I can tell you if this part of the pipe breaks, this will be the level of service – that can be known. We can deal with this without using a specific scenario magnitude earthquake. From a retailer perspective, what decisions need to be made? There are regulatory issues for running out of water (boiling water permits)

Phil Brun (Napa): So many variables involved with where an earthquake strikes and how it will affect your system – modelling is great and all, but there are so many variables, and you can provide scenarios but you have to react to what actually happens.

The 2014 earthquake only affected our distribution system – this made it a lot easier. 120 leaks at first, which is pretty small. Important to be ready to be nimble when it occurs. It's two part: communicate before it happens; what we're responsible for. After the event, there's a whole other level of communication. A week out, people were happy to see us. After that, they want to know what's going on – is it safe? Why is it out? Where is it out? They want maps, on website. Queuing up expectations for after is almost more critical.

Jim Wollbrinck (San Jose Water Company): If you take scenario analysis, it's almost 10,000 leaks based on the EBMUD work. Regionally, there could be 100,000s of leaks. Repair materials aren't sitting on shelves – in an event, all the utilities, everyone is going to be competing for resource. Who gets prioritized? Significant amount of coordination beforehand.

Supervisor Mitchoff (Contra Costa): Do you not have spare parts on hand because they are expensive? That's what citizens are going to ask. You bring up a great point – if there's only 1 widget and everyone needs, it, who gets it?

Mike Ambrose (EBMUD): To respond, we are looking at that particular issue – our valves vary and some take months to obtain. It's not that easy to have these sitting in a warehouse – it's an investment, materials have a shelf life.

Colter Anderson (Zone 7): The second part is that maybe he has one very expensive piece on the shelf, but now that 3 broke, he needs 2 more expensive pieces. We have some in storage but if there are 120 leaks, I don't have 120.

Supervisor Mitchoff (Contra Costa): This is important, I wish some more of my elected colleagues were here.

Erin Baker (SCVWD) – We stockpile as well, but we have 6 month lead times on some items. We spent \$2million last year, we know the importance, but financially it's difficult.

[How do we balance and integrate short term response strategies to provide water service with long term system improvement decisions]

Duane Bay (ABAG): heard investment twice in the last 2 minutes. These are capital improvements we're talking about. Timothy, can there be smaller infrastructure improvements, but you have to have the framework in place. Hard enough to keep the long term in mind. What is the opportunity to use short term attention to get to the long term work? Anyone have any successes.

Erin Baker (SCVWD) One approach SCVWD uses. We know infrastructure, especially our pipes are aging, and we know we need to incorporate seismically resistant pipe when things are due for replacement – incremental upgrades.

Mike Ambrose (EBMUD) We are looking at pipe networks; looking at potential damage and upgrading as we go forward. Hate to keep harping on this, but we will have breaks no matter how hardened the pipes are. We have to address loss of service.

Supervisor Mitchoff (Contra Costa): We don't listen to preparedness, I don't have 3 days' worth of water. We will have to look more to our social structure. That's an aside.

Jim Wollbrinck (San Jose Water Company): Don't feel bad. Lots of emergency managers aren't prepared. Part of this is looking at lessons learned from Napa and New Zealand - our crews aren't going to be fixing leaks – they're going to be managing staff from out of the area. We've also found from the USGS, we've got some mitigation short term strategies for smaller systems. What scares us are losing the larger pieces that are very expensive – do the ratepayers want to pay for that level of preparedness?

Supervisor Mitchoff (Contra Costa): Can Sarah comment on the federal role?

Sarah Gambill (DHS - IP): Federal resources are avail after disasters. Great thing to be aware of, but action on the front end can really have impacts as well. Caution that after resources aren't the only thing people rely on.

Supervisor Mitchoff (Contra Costa): Is there some way that other areas in the country can assist – where normal rules are suspended?

Edgar Castor (DHS-IP): Every time FEMA gets ginned up – we can lean as far forward as we can, but the local and state have to come forward first. State and locals already know where to get these things. In the Pacific recently, generators and phone poles were the main items. 1000s went down – the sourcing had already started. We can do that from a water perspective. Local goes to state, state goes to fed. Have to hold back until state lets the fed know.

Lori Wyatt (Sonoma CWA): To go back to how we balance strategies. What we've heard a lot about is agencies knowing where vulnerabilities are. This means they've probably got LHMPs, but we're competing for dollars. Smaller utilities that don't have staff are more vulnerable than the larger utilities. We do a lot of CIPs through federal grants. Gives us balance of short terms and long term. We have to make sure we're looking for the best materials, technologies, etc.

Supervisor Mitchoff (Contra Costa): Know that agencies of all sizes have to find resources to find grant writing. Have to have the money to hire the grant writers.

Maureen Martin (CCWD) Wanted to echo back to the Bay Area Regional Reliability (BARR) effort – and new capital vs maintenance; interties are important. What we think of as interruption of supply isn't just pipes leaking but there are Delta issues with supply. Can't speak to maintenance, but we are trying to integrate interties and working thru institutional agreements to add resilience to water supply.

[How can cities and utility districts work directly together to solve community service disruptions?]

Supervisor Mitchoff (Contra Costa): Any examples of larger districts helping other special districts? I know sanitation and wastewater are important too. This isn't being done, but are you aware of collaboration and jurisdictional lines being crossed?

Timothy Burroughs (Berkeley): Aging infrastructure is being discussed. As a city, all of our infrastructure is aging. There is an opportunity to coordinate utility upgrades -- just need to determine how do it effectively. Talking about back up power which cuts across all sectors – can we coordinate back up power solutions such as our micro grids? It is another question of increased coordination.

Colter Anderson (Zone 7): Always potential, but preplanning isn't always there. There are so many different plans within cities. If you let the district know you've got high density housing coming preplanning can occur. It's important to know who the players are because we don't know what the projects are. We need to hear from cities about additional population and demand on pipelines. If we know ahead of time, we can adjust, but need the lead time. We have no idea where this growth is going until foundations are poured.

Supervisor Mitchoff (Contra Costa): This is exactly why we're having this conversation.

[Developing a San Francisco Bay Area Regional Lifelines Council]

[Lifeline Council – see powerpoint slides at end of minutes]

Duane Bay (ABAG): Want to compress this, as next meeting will cover this in depth, but want to have this framed. The proposed prototype Lifelines Council is a policy-level roundtable that simplifies interagency problem-solving to assure continuity of critical services regionwide. There are a number of questions that spring out of the definition. What is the topic? What do we mean by region wide? What do we mean by interagency? This is a draft only. Who would be on such a council? Would it rotate depending on topic? Terms of office – we need to have some sense of continuity. Maybe it's a body that hosts some of these ground truthing studies you were talking about.

Sarah Gambill (DHS - IP): Exciting listening to the conversation; lots of potential; with regard to Lifelines Council, there are lots of prototypes. Need to make sure coordination of utilities and emergency management folks, plus infrastructure folks, but also need electeds. This has to do with identifying funds and resources for infrastructure. We often think in terms of fuel, telecom, water, etc., and need to have representation from across sectors, but this doesn't preclude focusing on water. Could identify short term priorities. There are some great examples – Charleston and their MOUs to expedite recovery or among service providers. This is exciting and if there's the ability to leverage a forum to galvanize regional priorities, it's something forums like this can drive.

Arrietta Chakos (ABAG): This could be seen as an outgrowth of the San Francisco Lifelines Council. Out of that grew a deep study of the interdependencies among sectors. They got a 5 year plan. Many people in this room are part of this. To have practical working groups plus convening electeds so they can start making decisions. As an example, Berkeley has a \$100,000,000 ballot measure for infrastructure – this speaks to Timothy's work. Need bridge between policy and decision makers. To incorporate data and materials UASI has and then use EBMUD's model approach they shared with at the start of the meeting. Phil, Jim, and Colton mentioned we can't solve every problem ahead of time, but we can warm up the crowd to what they can expect.

Supervisor Mitchoff (Contra Costa): If you have thoughts, please talk to ABAG, ABAG reps, email. Oct 12th. Register!

Meeting Presentations

Regional Planning Committee

Infrastructure Subcommittee

September 14, 2016

9:30 am – 11:30 am

AGENDA

- Introductions & Process Update
- Water Delivery Presentations:
 - Bay Area Earthquakes 101
 - Yellow Command Exercise
- Moderated Discussion
- Developing a Regional Lifelines Council



Subcommittee Process Update

RPC Infrastructure Subcommittee #1

Wednesday, July 27 (2:00p-4:00p)

- Introduction to the process.
- Drought and future water supply challenges.

RPC Infrastructure Subcommittee #2

Wednesday, Sept. 14 (9:30a-11:30a)

- Water service following an earthquake.
- Introduce Regional Lifelines Council concept.

RPC Infrastructure Subcommittee #3

Wednesday, October 12 (2:00p-4:00p)

- Discuss Regional Lifelines Council structure.
- Next Steps for Subcommittee.

Bay Area Water Resilience Study

Late October, 2016

- Synthesizes information produced for and emanating from subcommittee meetings.

Bay Area Confluence Symposium

Thursday, November 10 (1:00p - 6:30p)

- Broaden the circle to share the subcommittee's proposed direction.

Present to ABAG Boards & Partners

December & January Meetings

- Share process with ABAG's board and with local, regional, state, and federal partners.

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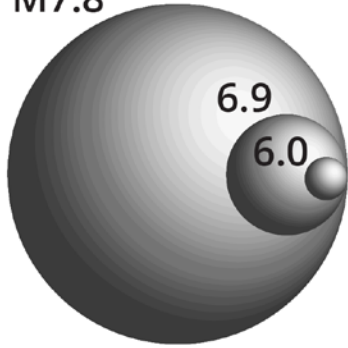
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Bay Area Earthquake Risk & Global Case Studies

Michael Germeraad
ABAG Resilience Planner

Timeline of Earthquakes & Population Growth in the San Francisco Bay Area

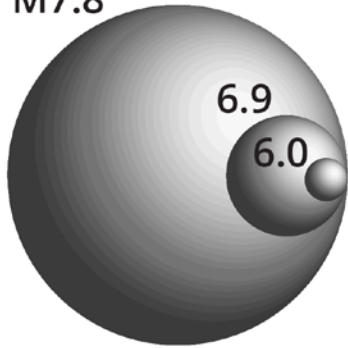
M7.8



A magnitude 7.0 earthquake releases 33 times more energy than a magnitude 6.0 and 1000 times more than a magnitude 5.0 earthquake.
(Sphere volume is representative of quake energy)

Timeline of Earthquakes & Population Growth in the San Francisco Bay Area

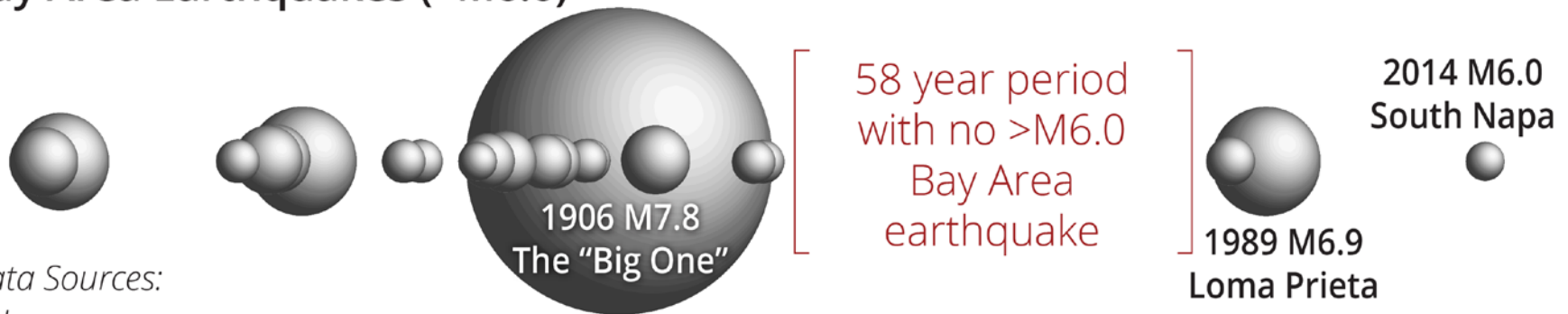
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1830 1850 1870 1890 1910 1930 1950 1970 1990 2010 >>

Bay Area Earthquakes (>M6.0)²

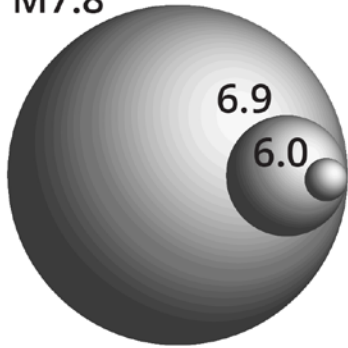


Data Sources:

1. bayareacensus.ca.gov
2. Ellsworth (1990)

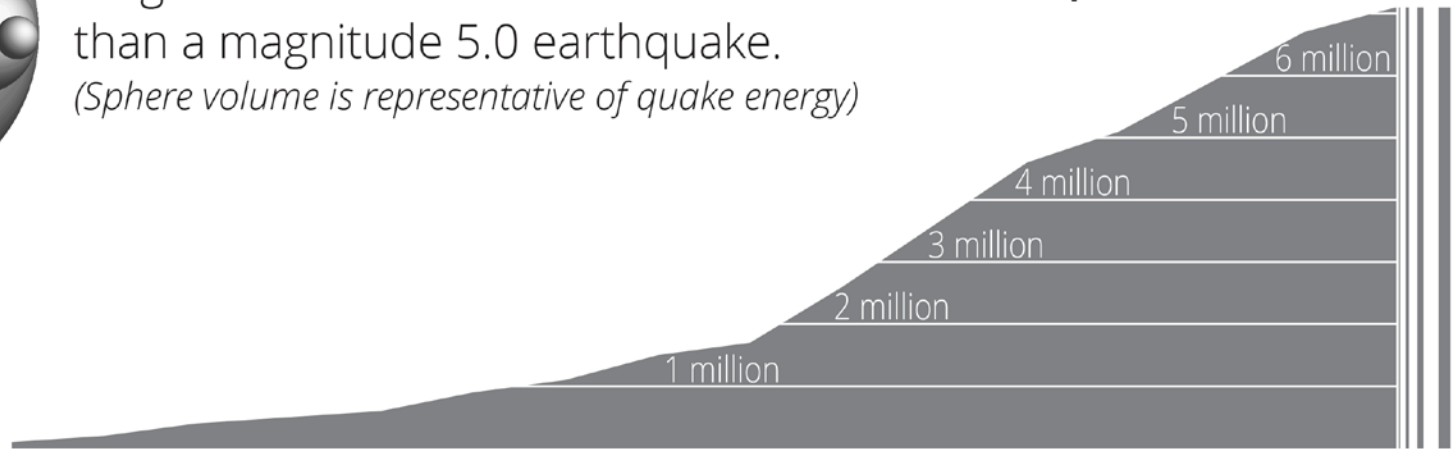
Timeline of Earthquakes & Population Growth in the San Francisco Bay Area

M7.8



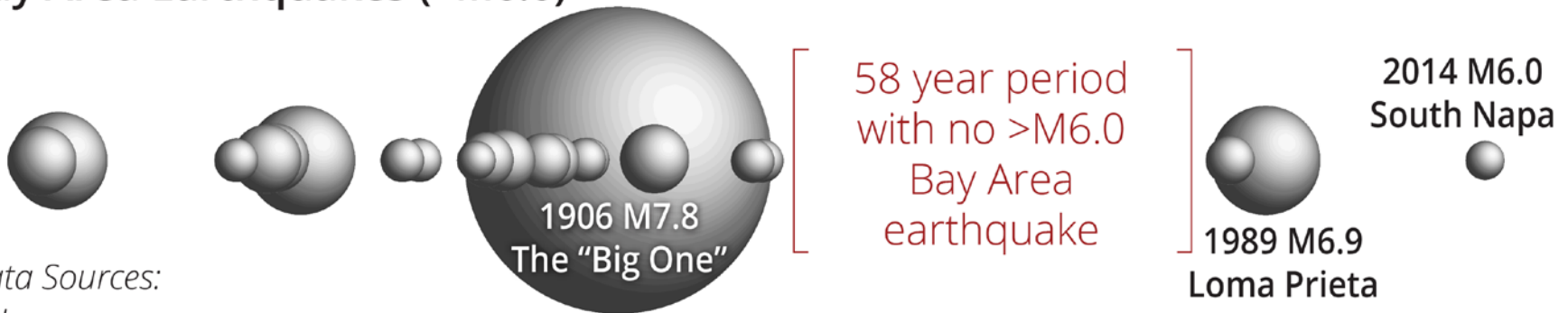
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Bay Area Population Growth¹



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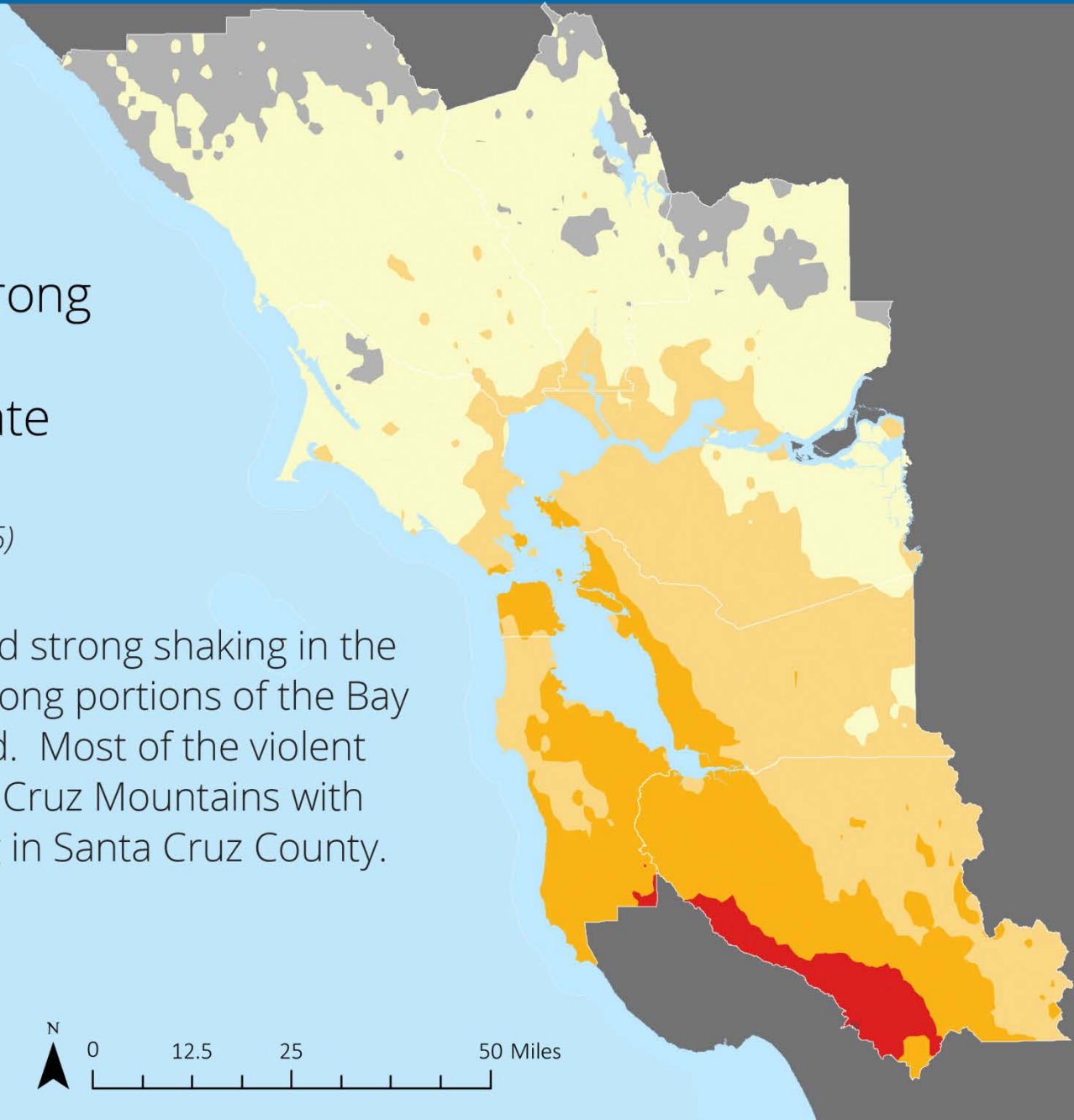
1989 M6.9 Loma Prieta Earthquake Shaking Map (for Nine County Bay Area)

Shaking

- MMI 9 - Violent
- MMI 8 - Very Strong
- MMI 7 - Strong
- MMI 6 - Moderate
- MMI 5 - Light

Map Source: USGS & CISN (2015)

The Bay Area experienced strong shaking in the Santa Clara Valley, and along portions of the Bay as far North as Richmond. Most of the violent shaking was in the Santa Cruz Mountains with most very strong shaking in Santa Cruz County.



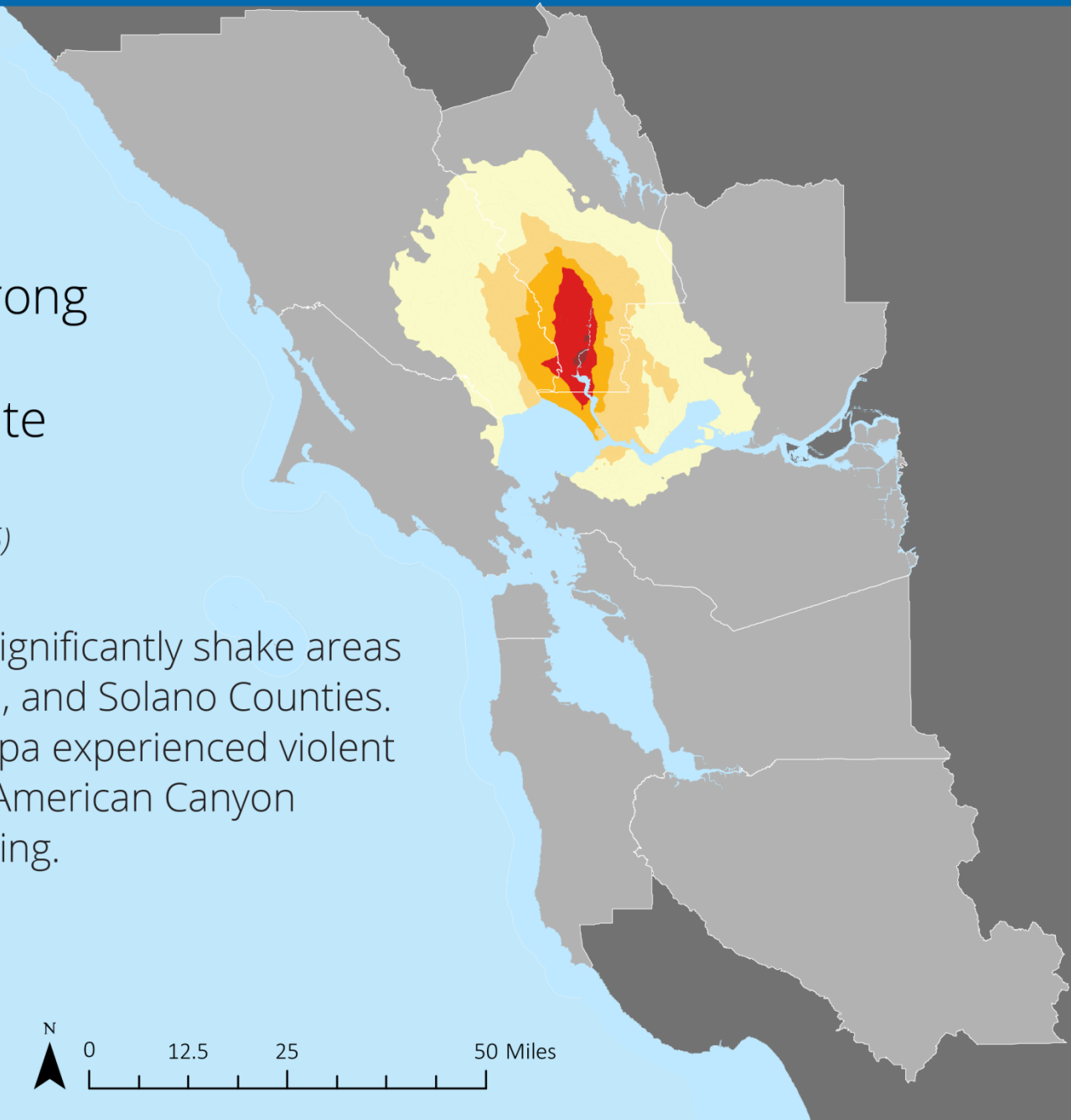
2014 M6.0 South Napa Earthquake Shaking Map (for Nine County Bay Area)

Shaking

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- MMI 8 - Very Strong
- MMI 7 - Strong
- MMI 6 - Moderate
- MMI 5 - Light

Map Source: USGS & CISN (2015)

The earthquake did not significantly shake areas outside of Napa, Sonoma, and Solano Counties. Portions of the City of Napa experienced violent shaking with Vallejo and American Canyon experiencing strong shaking.



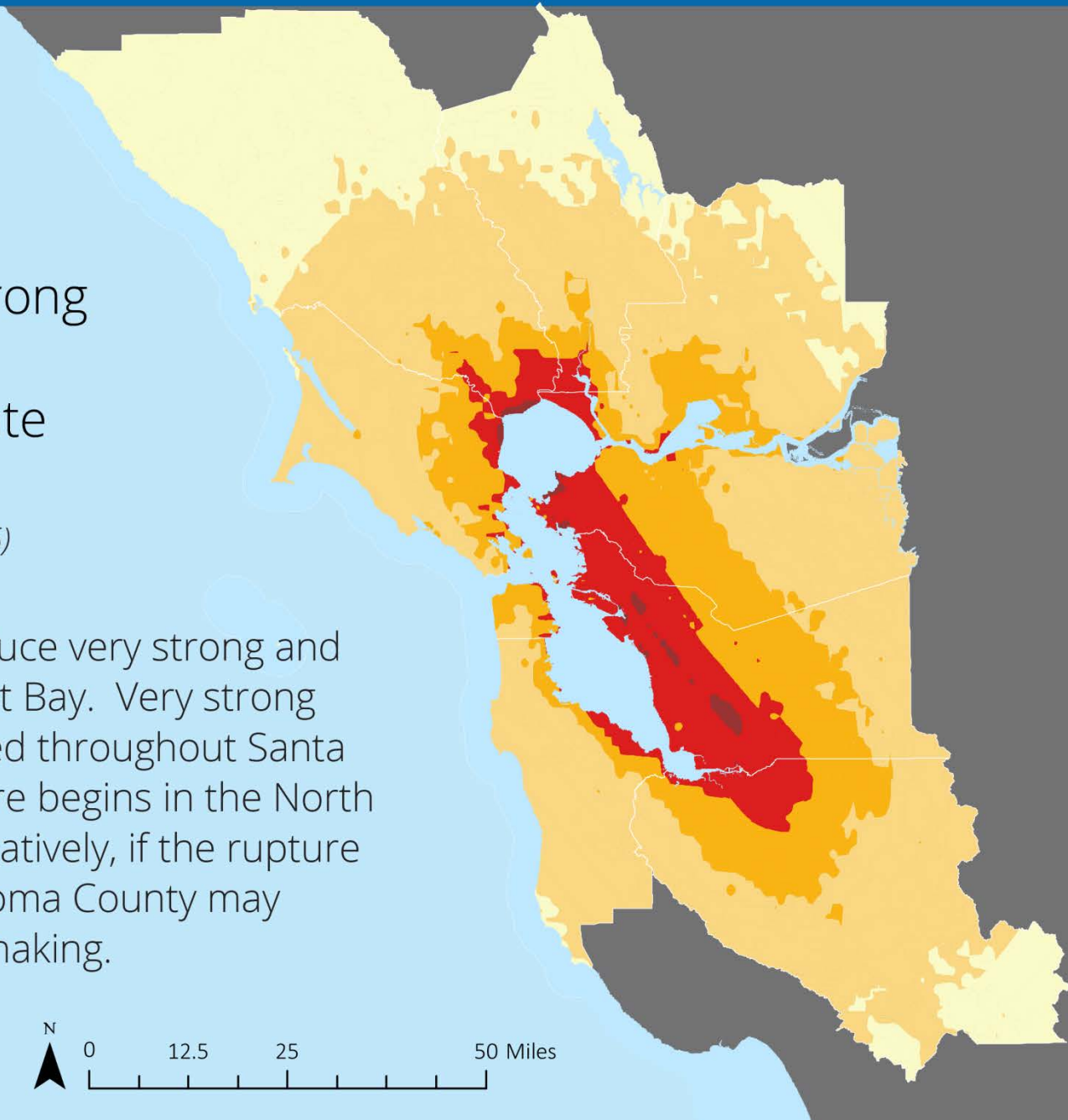
M7.0 Hayward Scenario Earthquake Shaking Map (for Nine County Bay Area)

Shaking

- MMI 9 - Violent
- MMI 8 - Very Strong
- MMI 7 - Strong
- MMI 6 - Moderate
- MMI 5 - Light

Map Source: USGS & CISN (2015)

The earthquake will produce very strong and violent shaking in the East Bay. Very strong shaking could be expected throughout Santa Clara County if the rupture begins in the North and moves South. Alternatively, if the rupture begins in the South, Sonoma County may experience very strong shaking.



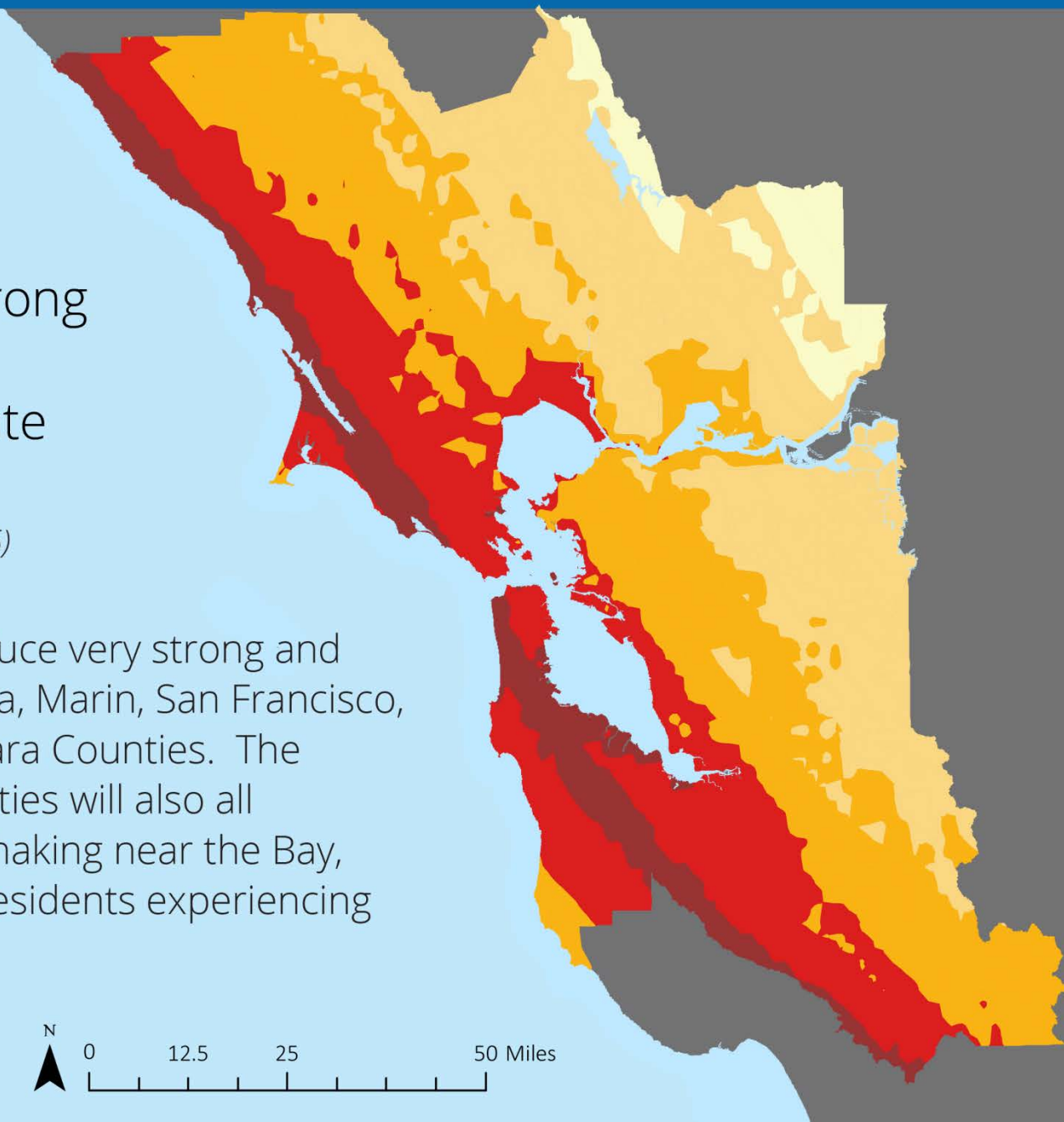
M7.9 San Andreas Scenario Earthquake Shaking Map (for Nine County Bay Area)

Shaking

- MMI 9 - Violent
- MMI 8 - Very Strong
- MMI 7 - Strong
- MMI 6 - Moderate
- MMI 5 - Light

Map Source: USGS & CISN (2015)

The earthquake will produce very strong and violent shaking in Sonoma, Marin, San Francisco, San Mateo, and Santa Clara Counties. The remaining Bay Area counties will also all experience very strong shaking near the Bay, with nearly all Bay Area residents experiencing at least strong shaking.



1989 M6.9 Loma Prieta Earthquake Shaking Map (for Nine County Bay Area)

Shaking

- MMI 9 - Violent
- MMI 8 - Very Strong
- MMI 7 - Strong
- MMI 6 - Moderate
- MMI 5 - Light

Map Source: USGS & CISN (2015)

The Bay Area experienced strong shaking in the Santa Clara Valley, and along portions of the Bay as far North as Richmond. Most of the violent shaking was in the Santa Cruz Mountains with most very strong shaking in Santa Cruz County.



Bay Area Alquist Priolo Fault Zones

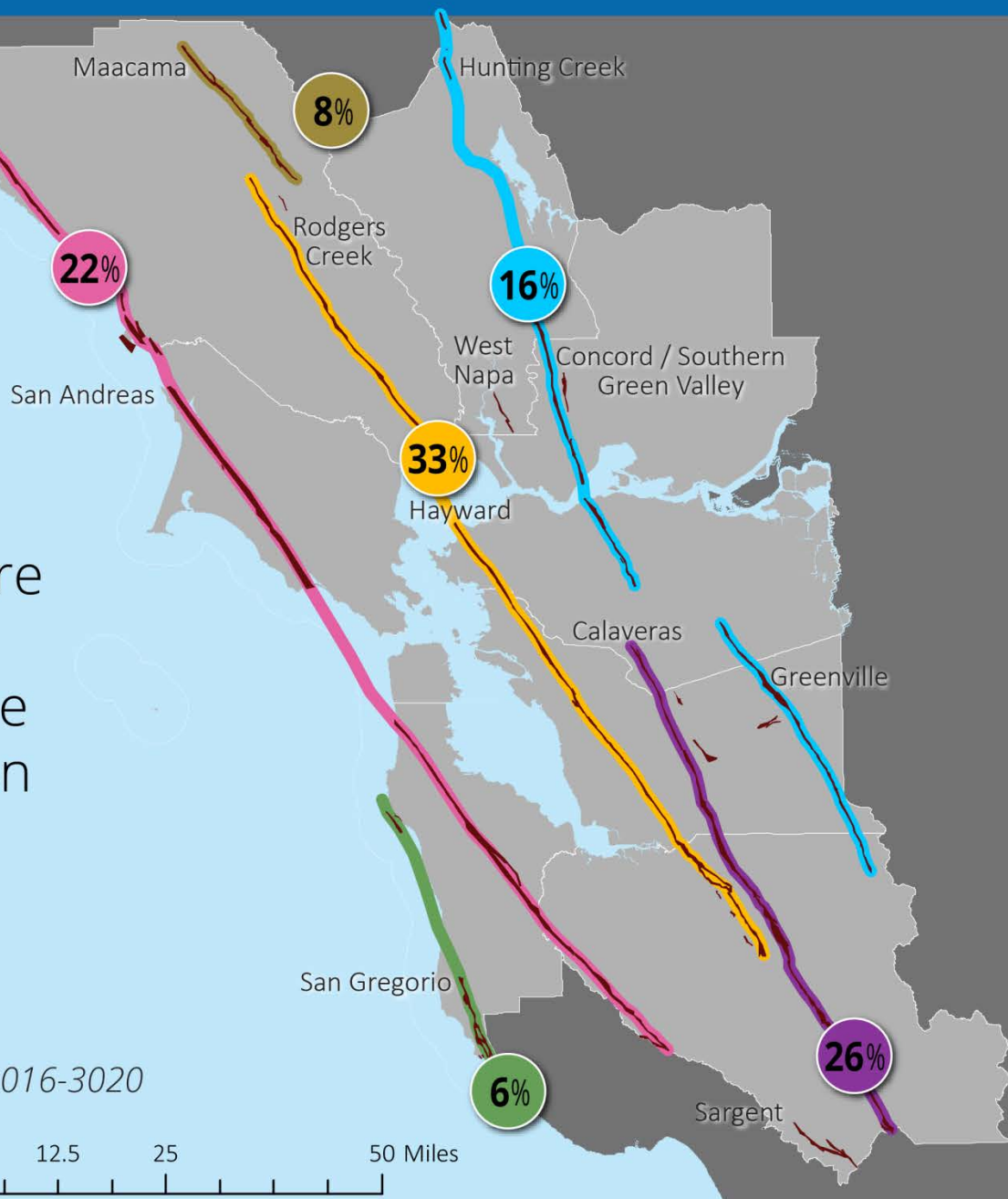


Map Source: CGS (2015)

Major Bay Area Faults & Their 30 Year Earthquake Probabilities (M>6.7)

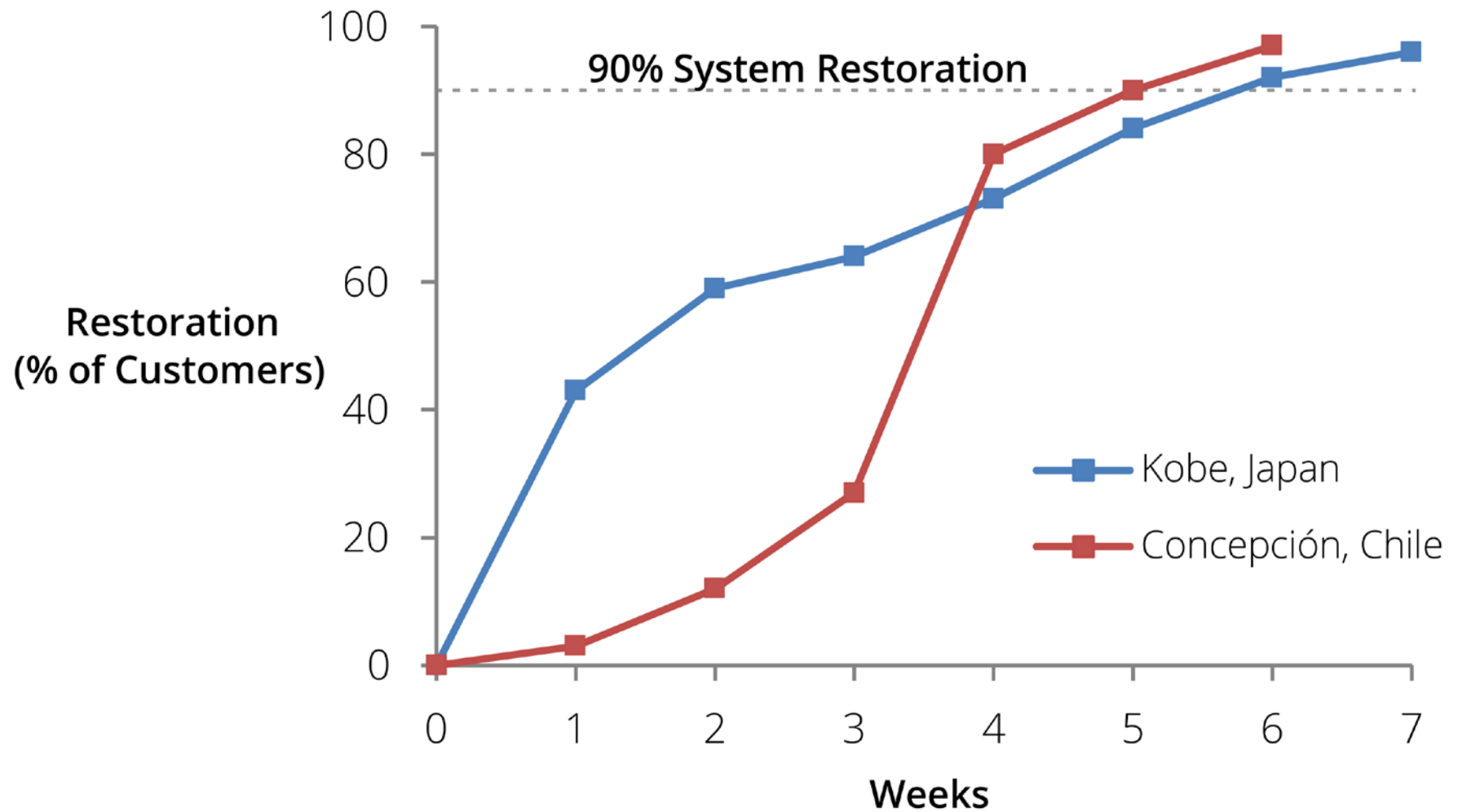
72%

probability of one or more
M>6.7 earthquakes
from 2014 to 2043 in the
San Francisco Bay Region



Information adapted from USGS Fact Sheet 2016-3020

Water System Restoration in Kobe (1995) and Concepcion (2010)



Temporary Water Solutions in Christchurch, New Zealand (2010, 2011)



Photo Credit: Lori Peek via EERI

03-16-2011 18:06

Bay Area UASI

Yellow Command 2016

COREY REYNOLDS

Regional Project Manager

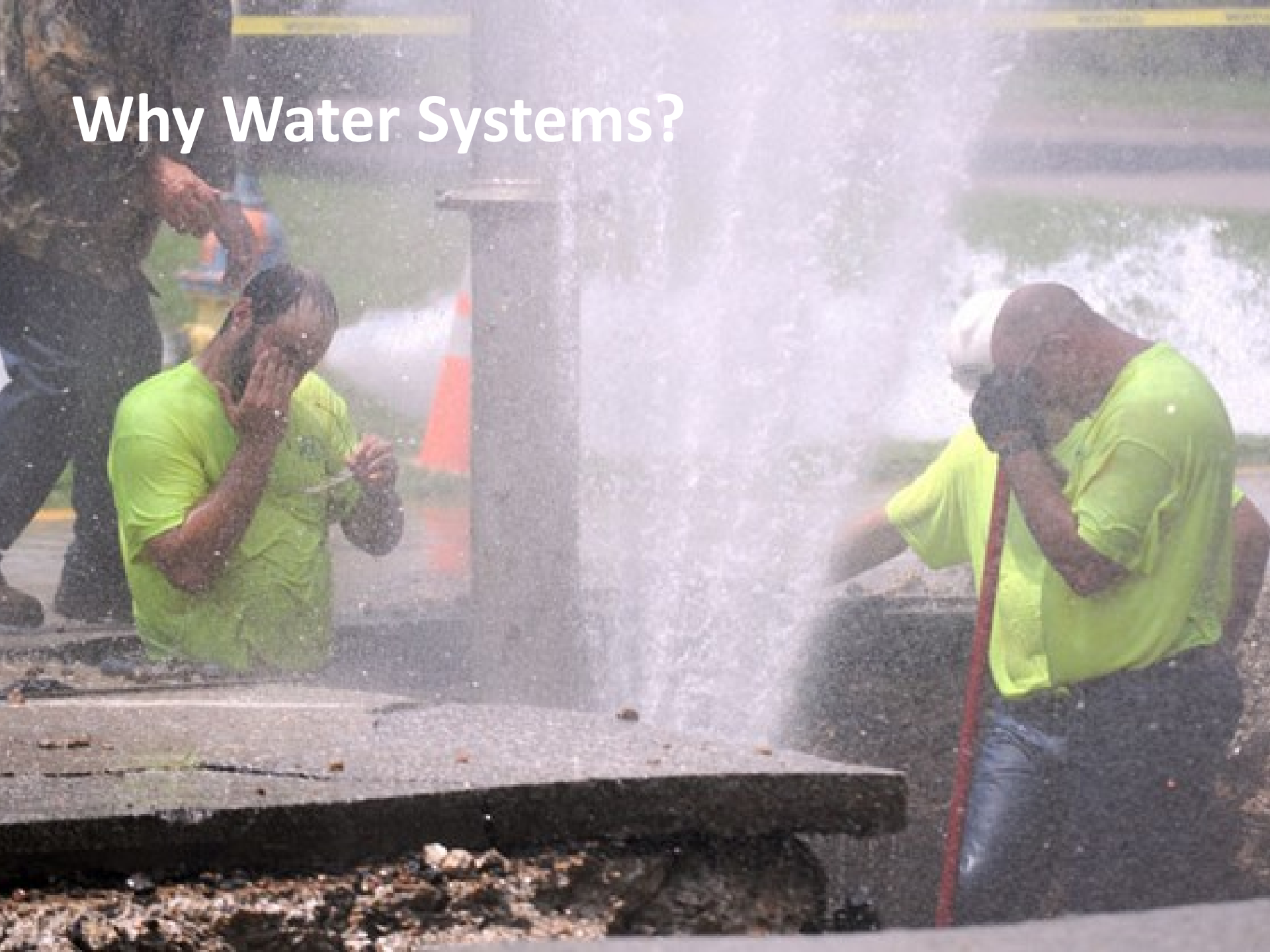
Bay Area Urban Areas Security Initiative (UASI)



**Bay Area UASI
FY16 Risk and Gap Report**

Risk and Gap	Core Capability	Risk Relevance	Level of Ability	Gap Analysis
1	Supply Chain Security and Integrity	12	Low	Needs Extra Attention
2	Infrastructure Systems	3	Low	Needs Extra Attention
3	Cyber Security	1	Medium Low	Needs Extra Attention
4	Screening, Search, and Detection	11	Medium Low	Needs Attention
5	Public Information and Warning	9	Medium Low	Needs Attention
6	Critical Transportation	19	Medium Low	Needs Attention
7	Operational Communications	8	Medium Low	Needs Attention
8	Forensics and Attribution	2	Medium High	Needs Attention
9	Intelligence and Information Sharing	4	Medium High	Needs Attention
10	Interdiction and Disruption	5	Medium High	Needs Attention
11	Mass Care Services	18	Medium Low	Needs Attention
12	Physical Protective Measures	17	Medium Low	Needs Attention
13	Access Control and Identity Verification	21	Medium Low	Needs Attention
14	Mass Search and Rescue	6	High	Sustain
15	Threat and Hazard Identification	13	High	Sustain
16	Risk Management for Protection Programs and Activities	14	High	Sustain
17	On-Scene Security and Protection	7	High	Sustain
18	Risk and Disaster Resilience Assessment	10	High	Sustain
19	Planning	15	Medium High	Sustain
20	Community Resilience	16	Medium High	Sustain
21	Natural and Cultural Resources	28	Low	Sustain
22	Environmental Response, Health and Safety	20	Medium High	Sustain
23	Situational Assessment	22	Medium High	Sustain
24	Long-Term Vulnerability Reduction	29	Medium Low	Sustain
25	Fatality Management Services	23	Medium High	Sustain
26	Economic and Community Recovery	27	Medium Low	Sustain
27	Health and Social Services	31	Medium Low	Sustain
28	Housing	25	Medium Low	Sustain
29	Public and Private Services and Resources	26	Medium High	Sustain
30	Public Health and Medical Services	24	Medium High	Sustain
31	Operational Coordination	30	Medium High	Sustain

Why Water Systems?



Commodity Points of Distribution (C-PODs)



Building Regional Capabilities

Capability Building

Planning

Training

Exercising

**C-POD Site
Identification
and Mapping
Workshop**

**C-POD
Resources
Workshop**

**C-POD
Security
Workshop**

**C-POD
Activation
Guides**

**C-POD
Managers
Course**

**EOC Water
Unit Course**

**Yellow
Command
2016**

March 30, 2016

April 28, 2016

July 20, 2016

June – Nov 2016

August 3-4, 2016

September 1, 2016

September 8, 2016

**Bay Area Water Systems Training
and Tabletop Exercise**

June 1, 2016





Yellow Command
2016



Exercising local, state, and federal
response capabilities to distribute
potable water to 1.8 million
households following a
catastrophic earthquake



15
EOCs

3
Full-Scale C-PODs

7
Water Agency and
Utility Partners

30+
Participating
Organizations

Public Information

Situational Awareness

Operational Coordination

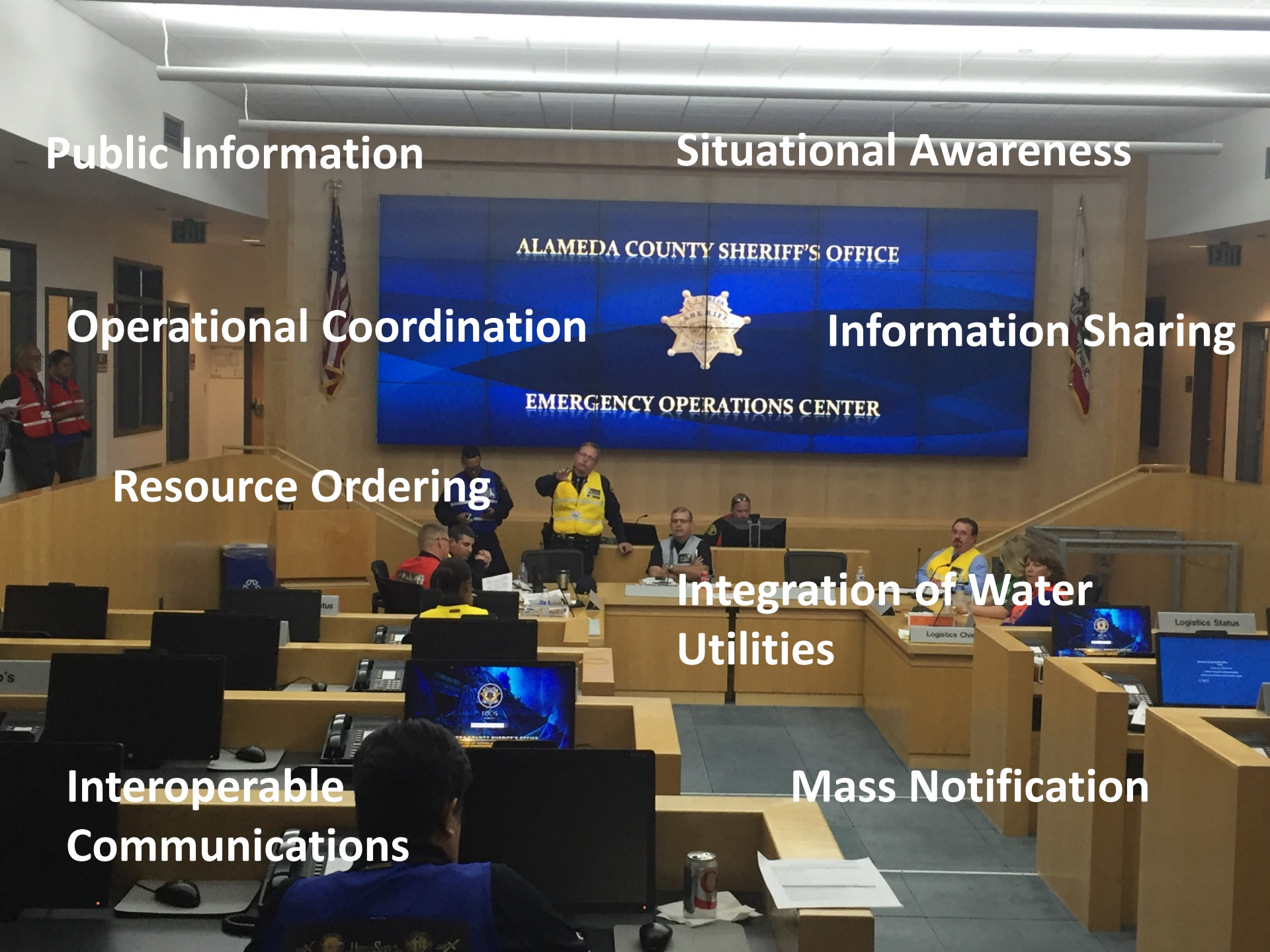
Information Sharing

Resource Ordering

Integration of Water
Utilities

Interoperable
Communications

Mass Notification





Regional Catastrophic Earthquake Logistics Response Plan

Annex to the San Francisco Bay Area
Regional Emergency Coordination Plan

February 2014

Prepared for:
California Governor's Office of Emergency Services



Cities of Oakland, San Francisco, and San Jose
Counties of Alameda, Contra Costa, Marin, Monterey,
Napa, San Benito, San Mateo, Santa Clara, Santa Cruz,
Solano, and Sonoma



BAY AREA
REGIONAL LOGISTICS
PROGRAM

Point of Distribution Field Operations Guide

February 2014

ES 004 ASSIGNMENT LIST LOADING GROUP	EVENT NAME/LOCATION NAME OF SITE C-POD	OPERATIONAL PERIOD
OVERALL STRATEGIES		
<ul style="list-style-type: none">Loading teams will be utilized for each vehicle loading point (total of 12), and each pedestrian loading point (total of 6). Each loading point has a team of 3 members.Cars will pull up to the vehicle loading lines 3 at a time; one for each loading point.Clients will not get out of their vehicles.Clients will not get out of their cars; clients will pay their trunk for commodities loading to minimize the number of people getting in and out of their cars, to save time, and to ensure the safety of clients and C-POD staff.The Mass Transit/Pedestrian Lane will not have separate pallets for loading and supply lines; the commodities will be loaded into the vehicles from the supply pallets.		

ATTACHMENT B: LANE 1 DETAILS: SUPPLY, LOADING & VEHICLE LINES		NUMBER OF LOADING STAFF
EVENT NAME/LOCATION	OPERATIONAL PERIOD	
SUPPLY LINE 1: SUPPLY TRUCKS		
NORTHWEST VEHICLE LANE		
Dimensions of Designated Area	100' Long x 15' Wide	36
Location for Supply Unloading	West of supply pallets	
Specific Driveway(s) Designated for Ingress	West 79th Street west driveway	
Special Instructions for Ingress	None	
Specific Driveway(s) Designated for Egress	North driveway at Building Avenue	
Special Instructions for Egress	None	18
Accessibility Considerations	An alternate egress point would be the south driveway at West 79th Street and Building Avenue, but there is a guard shack at this location.	

ATTACHMENT C: MASS TRANSIT-PEDESTRIAN LINE: SUPPLY & LOADING LINES		NUMBER OF LOADING STAFF
EVENT NAME/LOCATION	OPERATIONAL PERIOD	
PEDESTRIAN SUPPLY LINE: SUPPLY TRUCKS		
NORTH PEDESTRIAN SUPPLY LANE		
Dimensions of Designated Area	100' Long x 10' Wide	36
Location for Supply Unloading	East of C-POD, north of West 79th Street	
Specific Driveway(s) Designated for Ingress	West 79th Street at Building Avenue	
Special Instructions for Ingress	Count down in the middle of the driveway	
Specific Driveway(s) Designated for Egress	North driveway at Building Avenue	
Special Instructions for Egress	None	18
Location for Supply Unloading	Entrance roadway, west of supply pallets	

CITY OF LOS ANGELES PARKING LOT 753
414 E. Temple St.
Los Angeles, CA 90012

SITE INFORMATION



Standardized Planning



3 Full-Scale C-POD Activations

City of Oakland
Solano County
City of South San Francisco



Organization and Staffing

Access and Functional Needs

C-POD Layout

Forecasting and Strategic
Planning

Flow Control

C-POD Activation Process


C-POD Communications

Data Collection

Security

Off Loading

Site Hazard
Assessment/Safety



NCRIC | Northern California Regional Intelligence Center
Fusing Information, Talent And Training For A Safer Society.

NCRIC Alert Bulletin (U) SCOPE: The NAB provides immediate real-time updates on incidents and situations of urgent interest to NCRIC partners including officer safety alerts, BOL requests, threat warnings and ongoing incidents. Information within NABs may often include raw reporting that has not been fully evaluated, and is provided for situational awareness only.

EXERCISE: SITUATIONAL AWARENESS

08 September 2016

(U)EXERCISE: Patriotic Brotherhood of Bay Area Threatens Attack on Communications

(U//FOUO) The Patriotic Brotherhood of the Bay Area (PBBA) has threatened an attack against communication systems and the NCRIC assesses the group is likely to attempt such an attack bring attention to their cause and to disrupt ongoing earthquake response efforts. The PBBA, a group loosely tied to the sovereign citizen movement, has previously carried out attacks after making similar public threats. **The NCRIC encourages local public safety agencies to remain vigilant to any attempts to disrupt systems and to review business continuity strategies regarding communication disruptions.** Organizations such as local government and union groups may also be targeted by the PBBA because of their association with public safety agencies.

(U) Details

(U) At approximately 10:00 am today, a video was uploaded to the online site Simtube, purportedly from the PBBA in which the group claimed it would be attacking communication systems. In the video, the speaker stated:

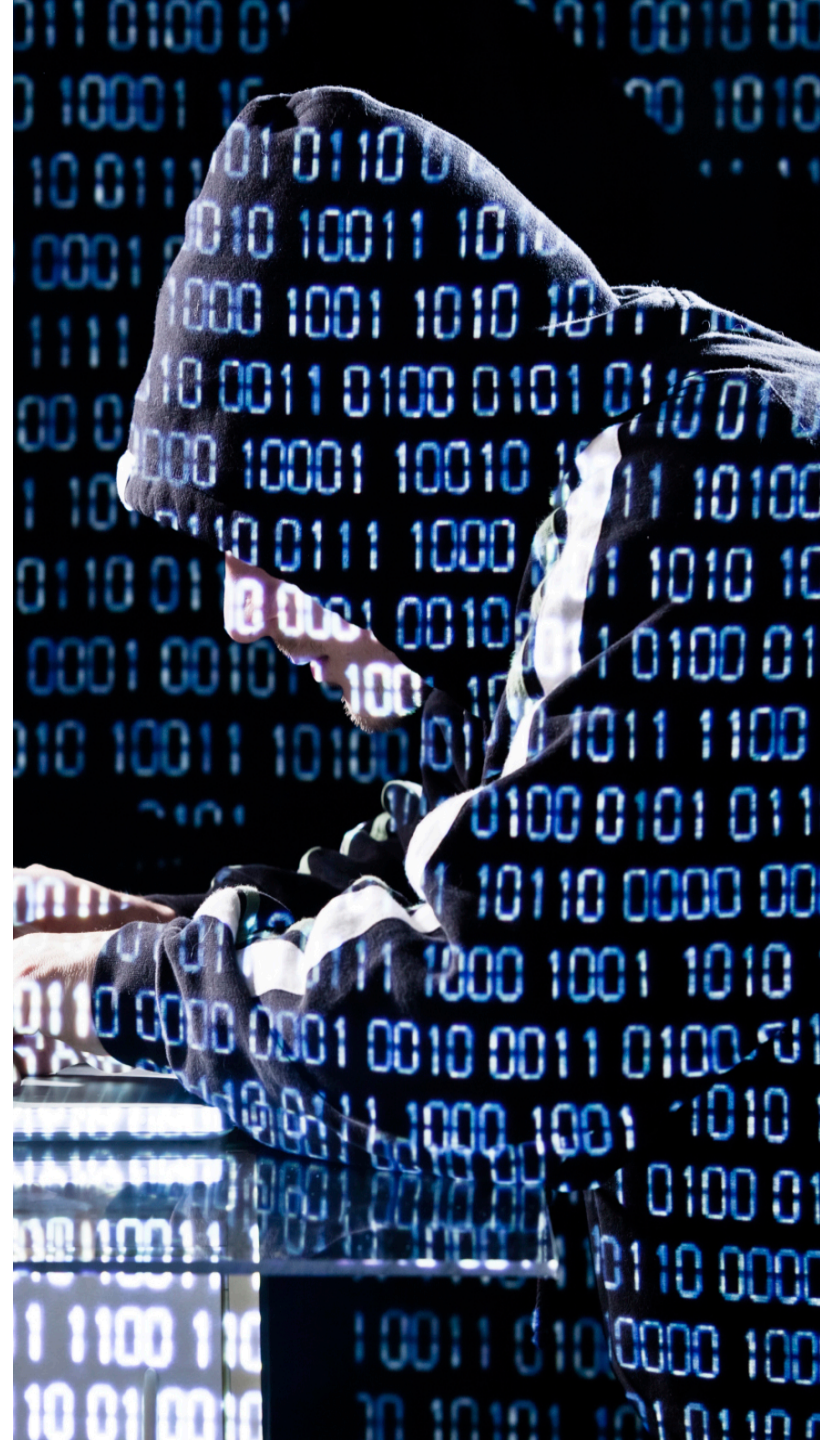
“...You will know when the lines go dead and your cries for help falls on deaf ears that the brotherhood has triumphed.”

(U) Outlook

(U//FOUO) The NCRIC has no additional reporting regarding the specific targets of the group or how the group plans to carry out an attack against communication systems. The video named no specific agencies, timeframe, or attack method. Although the threat was vague, public safety communications are the most likely target since the group has specifically targeted law enforcement in the past and the reference to “cries for help” possibly indicates public safety communications. The group could target communication systems with either a physical or cyber-attack. Public safety communications have been disrupted by other groups in the past with fiber optic cable cuts, the toppling of communication towers, and with Denial of Service attacks against network and telephone systems. Although the PBBA has targeted the public with IED attacks in the past, the visibility of fiber optic vaults and communication towers and the online availability of tutorials and paid hacking services facilitates the targeting of communication systems with limited technical knowledge.

(U//FOUO) The NCRIC requests that suspicious activity regarding this threat be immediately reported via our website, <https://ncric.org> or by phone at (866) 367-8847. Report urgent threat information to the FBI-JTTF at (415) 470-4090.

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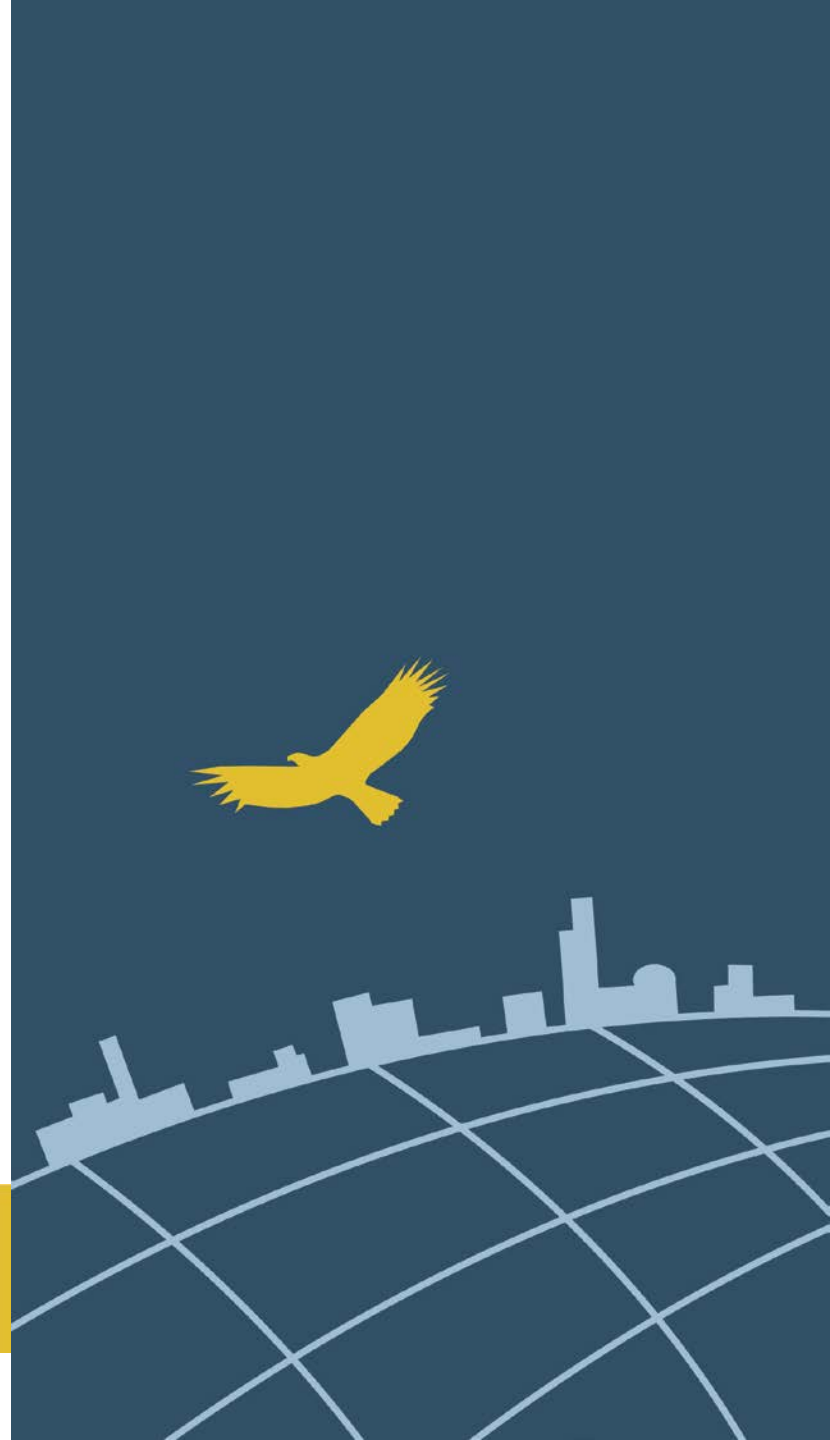


Next Steps



Questions?

BAY AREA UASI



The proposed **Lifelines Council** is a policy-level roundtable that simplifies interagency problem-solving to assure continuity of critical services regionwide.

Policy-level Roundtable = local
elected officials meeting quarterly,
or executive staff stand-ins

The proposed **Lifelines Council** is a **policy-level roundtable**
that **simplifies interagency problem-solving**
to **assure continuity** of **critical services**
regionwide.

Inter-agency = among and between
special districts, cities/counties,
public/private utilities

Simplifies...problem solving = an
open channel with shared context to
spot challenges and opportunities,
vet proposals, and expedite
discovery of co-benefits

Assure continuity = in response
to both shocks and stresses, from
post-disaster recovery to long-term
demand/supply imbalances

Critical services = initial focus on
water, then electricity; ultimately fuel,
medical, communications, et al

Regionwide = primary focus is on
inter-agency aspects of system-scale
challenges and opportunities

Regional Lifelines Council

Elements of the Council

- Membership representation
- Membership tenure
- Topic areas
- Desired Outcomes

Wednesday, October 12th
2:00 pm – 4:00 pm

3rd RPC Infrastructure Subcommittee Meeting

@ 375 Beale Street

BAY AREA CONFLUENCE

A call to action for regional water resilience

REGISTER

abag.ca.gov/resilience/bay_area_confluence_2016.html

November 10, 2016

hosted by the Association of Bay Area Governments