Rising Seas: Is San Francisco Ready?

https://www.climateone.org/audio/rising-seas-san-francisco-ready
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Greg Dalton: From the Commonwealth Club of California, this is Climate One leading the conversation about America's energy, economy and environment. I'm Greg Dalton and today we're discussing the expanding San Francisco Bay which is coming to a neighborhood near you. As one of our guests on the show likes to say. The reality of higher tides is hard to fathom because we think it happens slowly. But get this: seas rose about 8 inches the last century. Scientists predict that by 2050 oceans in Northern California will rise another 11 inches, give or take a few. That's right. Seas will increase more in the next 35 years than they did in the last 100. Like those advertisements for mutual funds say, the past is no guarantee of future performance.

The second half-hour we'll hear what property developers and government agencies are doing to prepare for a coastline that will be very different than the one we have known in modern times. We'll hear from former regulator Will Travis, property developer Charlie Long, and design expert Margie O'Driscoll. That's in our second half-hour.

First, we'll explore how the mainstream media is covering this story. We're joined by J.K. Dineen a reporter who covers the sizzling property market for the San Francisco Chronicle, Lauren Sommer is a reporter covering science for KQED public radio news, and Michael Stoll is executive director of the San Francisco Public Press which devoted an entire issue to rising seas last year. Please welcome them to Climate One.

[Applause]

So J.K. Dineen, the Bay Area has a housing crisis, there is a lot of fair amount of building going on; where does sea level rise rank in the concern of building housing and addressing housing affordability crisis in the Bay Area?

J.K. Dineen: I mean, in a way it's at the top but it's also at the bottom. It's sort of, I would say that if you sit through a 10-hour planning commission meeting, there won't be a single person who mentions sea level rise; its historic preservation, its affordable housing, its shadows, its open space and there's always pressing and I mean right now the Planning Commission or the Board of

Supervisors is meeting about, it's an appeal of a 350-unit project in the mission which will easily go 10 hours. There'll be hundreds of people that will testify and this is the fourth set hearing and not one person will mention sea level rise.

I think, however, at the same time sort of in the background of this kind of new urbanism and infill and transit oriented development and all that sort of thing is, you know, the sense that it's all about climate change and bringing people, you know, close to transportation and walking and biking and all that sort of thing. So I think that typically it's, you know, sea level rise is something that has been at most major American newspapers covered by the science reporters, not so much the real estate reporters. John King did a great three-part series, actually there's two more parts to it but the third one came out last weekend, but it's sort of very much separate from like the daily battles over every little development that comes along, whether it's on the waterfront or, you know, on higher ground.

Greg Dalton: So it's there. It's kind of -- it's there for some people but it doesn't come up as an average concern during hearings. Earlier this year Wired Magazine produced a video featuring David Behar the climate program director at the San Francisco Public Utilities Commission, which gives an idea of what sea level rise could look like in the near future. Let's take a listen.

[Audio playback]

***David Behar**: Right now what we have is the king tides that happen every year, they're a little higher that what we get for normal high tides. We have an El Niño effect which involves warming of water which makes the water higher elevation as well and then a bit of a low pressure zone with the rain falling and that allows expansion of the water even still further.*

As we see the water sloshing over behind us, that's what we're going to see every single day, 2030, 2040, 2050, depending on how climate change and sea level rise go.

Greg Dalton: So that's David Behar with the San Francisco Public Utilities Commission standing right in front of the Commonwealth Club's new building. So Lauren Sommer, there's often, you know, he went downtown San Francisco to do that, it's often downtown gets covered. There's a bit of a bias towards downtown San Francisco, so when you're covering this do you look for downtown San Francisco or do you think about other areas that might be affected by sea level rise?

Lauren Sommer: I think as journalists we tend to gravitate towards things that are kind of iconic and symbolic, you know, the ferry building sitting right there. Obviously, a huge number of people work in the financial district. So there's a lot of other places around the Bay though that I think have become those places as well, I mean, some people might be familiar with there's a spot of 101 near Mill Valley that gets flooded on a regular basis now. You can pretty reliably go up there and see them shutting down this bike trail. The tech companies are another great example that people kind of, you know, see them right on the Bay. So we tend to pick those places because it's something that people can connect to even if you maybe live across the Bay or in the South Bay or something like that. But it's getting much easier to find those places than it was maybe 5 or 7 years ago.

Greg Dalton: Michael Stoll, you did a deep dive on sea level rise recently, you know, extended a whole issue of the San Francisco Public Press on this. What were some of the headlines you found in that? What were some of the takeaways from looking at what's happening now in the city?

Michael Stoll: Generally, in the past, journalists have been focused on what has been built so far, the ways that the cities are going to have to deal with existing infrastructure.

We looked forward and we looked at existing, planning documents for new mega construction that's

happening right now on the Bay. We counted up 27 major projects worth hundreds of millions of dollars; all told $21 billion worth of development costs, it doesn't include the land, that's happening now that's either been permitted by local government or is under construction or has just been completed like the Facebook campus. These are places where they're going to put housing, commercial developments, strip malls, offices and sports complexes. These are going to be new neighborhoods that have never been inhabited before and they are going to be with us for generations.

Greg Dalton: Lauren Sommer, Michael Stoll mentioned Facebook, we often look to them as leaders in the economy in our region, where are they on this issue? Have you tried to talk to them about sea level rise which is if you look at the maps of inundation maps, Oracle, Google, they're all in some shade of blue area they'll be swimming sometime soon.

Lauren Sommer: Yeah, I think this summer, you know, we had Measure AA here in the Bay Area which, you know, in a lot of cases people heard the message that it was to restore wetlands and wildlife habitat which it definitely was, but sea level rise was part of the case that proponents were making about why people should vote yes on it. And so, we did see the tech companies kind of right before the election come out and support it. I would not say that they were a huge part of the conversation. It took me months to get them to call me back on this issue. But they're very much part of it whether they like it or not. I mean, Facebook has the new campus, the new buildings they built and they say that they built it above the floodplain which is what they are saying they've done to kind of prepare for sea level rise right there. But, you know, the Dumbarton Bridge, the freeway that comes in right there, their employees use that. There's a lot of places in the Bay Area that are going to have to talk about this hopefully sooner rather than later.

Greg Dalton: J.K. Dineen, obviously tech companies, if not tech employees, are a big part of the downtown market in San Francisco. Is this on their radar at all? Or like, the city is going to solve it, we're running our business, we can't be bothered with something like that.

J.K. Dineen: I mean, I think the tech companies are tenants and they just go into, you know, whatever space is available, they like large floor plates, they like old buildings, they like brick-and-mortar, they like tall ceilings. I don't think that in terms of their presence in downtown San Francisco it's something that they're focused on.

Greg Dalton: Not at all. Lauren Sommer, when you do a story on this do you make the climate connection, that is when you cover king tides or things like that? Because a lot of times extreme weather happens and journalists, weather people are reluctant to make that connection because they'll get attacked, oh it's not proven, et cetera, so how do you cover that? Do you actually make that climate tie?

Lauren Sommer: Yeah, I mean, in KQED we've kind of covered climate change as a regular part of our coverage for a long time. So it's always been there. But I think there are things like king tides that we try to cover because it's kind of reminding the Bay Area about what's coming. I mean, this was a really -- these past king tides which were over the winter were really interesting because El Niño was in effect and the warmer water expands. And so you had this added layer of the king tide which has to do with the gravitational alignment of the earth and the moon. You had El Niño, if you get a big storm or a windy day you've got the added level there of the water. So, I mean, there are these things that I think help the public understand, it's not just about the water slowly rising. You've got these events that can be much more problematic.

Greg Dalton: That's exactly what Superstorm Sandy was, it was a full moon, expanding ocean, high tides and, you know, the other New York Stock Exchange closes for three days because it's flooded.

Michael Stoll, you think that there's something called climate denial light in the Bay Area - tell us about that.

Michael Stoll: In some ways northern California and the Bay Area are an enlightened kind of bubble in terms of acceptance of science.

In other ways, there's this sort of strange compartmentalization where our public policies acknowledge the science of climate change and sea level rise in particular, but do basically nothing to shape the shoreline. And that's in part responsible for or a consequence of it's kind of hard to tell the lack of regulation on private property that's happening all across the Bay Area. There are more than 40 cities that touch the Bay in nine counties and none of the counties has a comprehensive plan to rezone the area that's going to be underwater or the area that's most likely to be underwater. We don't know whether it's 3 feet, 6 feet, 8 feet, 10 feet, there's different ways of calculating it. All of those are being talked about and local governments are taking baby steps.

By the time San Francisco has a sea level rise plan that actually makes recommendations to do things like put any kind of limits on private development it will be 2018. That will be three years after the city started studying this. They could be studying it for another 5, 10 years and meanwhile this massive wave of development that's happened in the recovery of the economy is going to be a done deal and you're going to see, you know, a lot of development that we are committing to right now that is in what is increasingly becoming known as a danger zone. And local governments, state governments and regional authorities are just now starting to take tentative steps. But there's really no political motivation to do so.

Greg Dalton: J.K. Dineen, you cover the property market, the property developers think in fairly long-term cycles but maybe not as long as decades. Is there any awareness that what they're doing now, are they going to like once they sell the building they're out of it, they're out of it, they're on to the next thing, and so the owners kind of buyer beware?

J.K. Dineen: I think, you know, developers follow government plans. All the development going on in San Francisco right now is because of neighborhood planning. It's comprehensive EIRs that cover the whole neighborhood and from that grows crops of buildings. And so, I mean, as a reporter I get, you know, hundreds of emails about all kinds of things; almost none about this issue, honestly. And I do think that, you know, to some extent I'm hearing from the same people that the Board of Supervisor is hearing from. They're reacting to their constituents and the developers are reacting to the politicians and we're covering the whole story and climate change, I mean, is this sort of overarching cloud over everything. But in terms of the nitty-gritty and how policy gets made and how plans get developed or rejected occasionally it's really just kind of like background noise.

Greg Dalton: Sure. The people who live in the Four Seasons Tower are much more concerned about that new tower in front of them blocking their million-dollar views than any potential sea level rise. Lauren Sommer, when you think about issues that get the public or even your editors interested, is it temperature records, fires, seas, drought, you know, is sea level rise a hard sell as a story because it's kinda so on the horizon?

Lauren Sommer: It's one of those gradual climate stories that, I mean, I cover this regularly, I'm dealing with this almost every climate story I do, right? We always say that environmental stories don't break, they ooze, right? And that makes it hard for us to kind of find the news hooks. I mean, once you've done the story of, wow this is a huge problem for the Bay, what are we building and where are we building it, it is hard to get your editor six months later to be interested in the exact same story.

So, I mean, I think the policy developments are kind of very incremental, far in between. I was looking at my old stories from 2011, it was the last big major kind of policy move around the Bay to figure out when you make planning decisions how much do you have to think about climate change. You know, I was like Googling that and I had to go way back to find it. So it's a huge challenge. But I think it's one where we need to think about these things in ways that are not just one development that's not in your city that's across the Bay that maybe you won't even read that story, right? I mean, this is a bay-wide problem. Planners are starting to think about it that way. There is definitely a big planning process going on for regional look at how the Bay is going to adapt. But we're far from a moment where that's actually just a regular story that we can find ways to cover.

Greg Dalton: We're talking about sea level rise at Climate One. I'm Greg Dalton. My guests are J.K. Dineen from the San Francisco Chronicle; you just heard Lauren Sommer from KQED radio and Michael Stoll from the San Francisco Public Press.

We're going to go to our lightning round and ask each of our guests to answer yes or no to a series of questions designed to be a little bit funny, make them a little bit uncomfortable. J.K. Dineen, yes or no, sea level rise is a buzz kill for people lucky enough to be involved in the hot Bay Area property market?

J.K. Dineen: Yes, definitely.

Greg Dalton: Michael Stoll, the San Francisco Chronicle has done a good job shining a light on the reality of rising seas.

Michael Stoll: No.

Greg Dalton: Lauren Sommer, poor people will be especially hard-hit by inundation from an expanding bay.

Lauren Sommer: Yeah, I think so.

Greg Dalton: Also Lauren Sommer, news coverage of rising seas will spike when downtown San Francisco starts to experience sunny day flooding.

Lauren Sommer: Probably. Lots of iPhones down there.

Greg Dalton: J.K. Dineen, the conversation today may prompt you to ask more questions about sea level rise in your reporting and include in future articles of the San Francisco Chronicle.

J.K. Dineen: That would be yes.

Greg Dalton: Also J.K. Dineen, the Golden State Warriors new waterfront stadium in San Francisco will one day be an excellent place to play water polo.

J.K. Dineen: It could be but I just looked up the average age of an NBA arena and they only last like 25 years. So the oldest arena in this country is Oracle which is 1966 and that's like twice as old as almost every other arena.

Greg Dalton: 50 years.

J.K. Dineen: It'll be gone.

Greg Dalton: Michael Stoll, the plan to protect the Warriors arena from rising seas includes

sandbags.

Michael Stoll: Yes.

Greg Dalton: Sure. Alright, that's the end of the lightning round. How they do? I think they did pretty well. Let's give them a round.

[Applause]

I want to talk about your particular, what you're doing if you think that climate change or sea level rise will affect you J.K. Dineen in your life?

J.K. Dineen: That's a good question. I mean I would say, you know, places that I bike, places that I camp. Places that I hike, you know, environments that I enjoy picnicking and hanging out with my kids, you know, may be vastly different when I'm an old man, maybe when I'm a grandfather. I don't know.

Greg Dalton: Maybe not so long. Lauren Sommer, how will sea level rise affect you in your life?

Lauren Sommer: I mean, I think we see the effects of climate change all over the Bay Area. We maybe just don't recognize it for the most of us; it's the parks where we go, right? The species we see there now may be shifting out of them. It's drought which studies show that climate change makes worse. I mean sea level rises exactly, it's expensive, floods are incredibly expensive when the freeways shut down for some reason, that's traffic that we all feel. And so maybe it's not, it's hard to, we tend to think of it as anybody who is right on the shoreline they're the only people that are going to be affected by this. But it's a very interconnected network that we kind of forget sometimes.

Greg Dalton: Michael Stoll.

Michael Stoll: If you live near the coast, it will affect you. If you live in a state that has a coastline, it will affect you. It'll affect your taxes, it'll affect your taxes right now in this decade, it affected Californians' taxes in June with passage of Measure AA that raised everybody's property tax to pay for natural buffers to protect some of the developers who are putting in housing and offices right now. We're currently paying for it and in the future we are going to have civilization move further and further into the water unless we collectively decide that we need to do something about it, we need to plan more rationally.

Greg Dalton: Michael Stoll, who are the heroes and villains in the story?

Michael Stoll: I think the heroes are the scientists who despite all of the grief that they're getting from deniers and people who are politically posturing, are doing the hard work, are looking at their own work with skepticism. Wondering how can this be, waking up in the middle of the night -- I can't even believe that my own model tells me that the oceans are going to rise as much the temperature is going to change as much. And they're putting it out into the world and they're brave to do so.

I think the villains hopefully will be will at some point turn to the good side. It's the subset of private industry in particular who are making motions and mouthing words that sound like environmental sensibility but are actually using our own laws against us and building as fast as they can and making profits.

Greg Dalton: Michael Stoll is Executive Editor of the San Francisco public press. We also have

today at Climate One, Lauren Sommer from KQED public radio and J.K. Dineen from the San Francisco Chronicle. I'm Greg Dalton.

And let's go to our audience questions. Welcome to Climate One.

Male Participant: Hi Greg. This question is actually for you. As the Commonwealth Club is building right on the waterfront, I'm wondering either what regulations you have to comply with to that. And also are you planning at all for, you know, evacuating the ground floor?

[Laughter]

Greg Dalton: The Commonwealth Club has been at the center leading of this issue and we are moving down to the Embarcadero to the waterfront. And we're going to have a front row seat to look at sea level rise. It's a very green building I wasn't involved in designing the building. There are some things about it that could've been better in terms of sea level rise, in terms of the electrical coming in below sea level. And something we're looking at whether we could change. We're going to be right there and we'll be having these discussions perhaps with rubber boots on next time, but thanks for that question. Let's go to our next question.

Female Participant: In the event of one of these climate change floods. Who is it that's going to pay to rescue all the people that are stuck in these buildings and these developments?

J.K. Dineen: Well, I mean, you know, I think the city has right now has to figure out a way to build a, I mean a sea wall at $4 billion is a conservative estimate. And I think that's a discussion that's happening. So hopefully people won't have to be rescued. But I mean, if there isn't a political will to do that then yeah, that's a good question.

Greg Dalton: Two quick, I've interviewed Christine Todd Whitman former governor of New Jersey hit very hard; $60 billion of taxpayers to pay for Sandy. She said at some point, Uncle Sam won't be there to bail people out. I asked the same as Senator Feinstein she said well that's what the federal government does after earthquakes. But typically Uncle Sam has been there but can Uncle Sam always be there is a question. Let's go to our next question. Welcome.

Male Participant: Hi. So people have mentioned Measure AA. And I'm just wondering how exactly that is going to be implemented. Where they're going to be constructing the wetlands and how that is going to address this issue effectively?

Greg Dalton: Lauren Sommer, you covered that, that was nine Bay Area County measure $15 parcel tax, how is it going to work?

Lauren Sommer: It's $12 a year each parcel in the Bay Area. It's a 20-year measure so they're going to be raising $500 million over that whole time frame. We don't know where the money will be spent. There's a restoration authority which is kind of like a specially appointed group and projects will apply for money for projects to build their project which is most likely a tidal restoration. The restoration authority is deciding what particular criteria each projects should have right now like what boxes do they have to check. And then I think it's half the money will be distributed regionally around the bay. And then the other half it's kind of up for grabs wherever. So the proponents we're saying, you know, every place around the bay is at least going to see some money.

Greg Dalton: Great. Next question. Welcome to Climate One.

Female Participant: Hi. Thank you all. You all mentioned in one form or another the policymakers and the lack of action there. What needs to happen to move the policymakers?

Greg Dalton: Lauren Sommer.

Lauren Sommer: I was remembering back to 2011 just before that which is BCDC, Bay Conservation Development Commission which is the state agency that kind of oversees the development decisions around the bay shoreline. And I was remembering the meetings they were having because they were saying okay, well if you have a project and you're coming before us, how much do you have to think about climate change, how much planning do you have to do? And it was very, I don't know what the right way to describe it, tense? Yeah, some very angry people because some cities worry they don't want to see their jurisdiction taken away that's their fear at least, right. Some you have what 100 plus cities around the bay each with very different visions of what they want their shoreline to be. And so as this agency BCDC kind of starts this next round of regional planning I'm actually really curious to see what the kind of we've had what, you know, 5, 6 years now of stories about floods, hurricanes, you know, kind of these extreme temperature records being broken. I'm wondering if the conversation has changed actually. That was maybe a nice answer.

Michael Stoll: Well, I'm not an advocacy journalist, I like report on what I see. And what I have seen is a fairly laid-back attitude toward this. We are going to study this and we are going to do studies in order to put out further studies that will result in recommendations that may or may not include actually doing anything. And that's the stage that we've been at for a couple of years. And so I think what we need first off is a public discussion and stories every day on the front page of the Chronicle and stories talking to various stakeholders.

You know, beyond that, there are some murmurs of regional cooperation like the restoration authority, Bay Conservation Development Commission is the strongest guardian of the coastline or the shoreline of the bay but their jurisdiction essentially ends 100 feet inland. Sea level rise doesn't make a distinction in terms of horizontal distance. It's vertical and it can go thousands of feet inland. So there are vast areas especially in the South Bay where the water will flood in and will flood out. And there are, there are rumblings about, you know, the commission has talked about the need to do some regional planning. That will probably take another 10 years and will probably have another tens of billions of dollars more development in place by the time they figure out what to do about it.

Greg Dalton: Lastly we have, quickly last question. Quick question and quick answer.

Male Participant: For Michael Stoll, on the issue of why San Francisco continues to grant building permits for buildings large and small in the floodplain. I've read that lawyers, some lawyers are saying that there is no legal way in which the city can deny such building permits. Have you talked to lawyers in the course of investigating your climate change piece on this issue?

Michael Stoll: Yeah, this is one of the loose threads that after spending nine months investigating this issue and working with cartographers and then going into the environmental impact report submitted by all of these developers, some of which have been scrutinized by local governments for years. There is a consistent undertone of argumentation from the development community that says that local governments don't have the legal authority to do anything about the issue and we're doing further investigation on that.

Greg Dalton: We have to wrap it up there for this segment. Let's give our thanks to Michael Stoll, Lauren Sommer and J.K. Dineen. Let's thank them.

[Applause]

[CLIMATE ONE MINUTE]

Announcer: And now, here's a Climate One Minute.

Kathryn Sullivan is a former astronaut and now administrator of the National Oceanic and Atmospheric Administration. As the first American woman to walk in space, she's seen the big picture – literally – on climate change. She shared her unique view of the world with Climate One last year.

Kathryn Sullivan: *When you get even a couple hundred miles away and look back the planet you get a really different sense of proportion. The thin little membrane of air, it's a little fluid membrane that envelops this ball of dirt and makes it habitable. It's very elegantly and finely structured. It's got a sort of precision to how it all works and clearly that the chemistry of, at least, is being altered.*

We are the first generation of human beings ever, in the history of humankind, that has the ability to comprehend and measure our planet the way we currently do with satellites and other instrumentation. We can essentially take a snapshot of global conditions, oceanic conditions, atmospheric conditions, and this is what's made it possible for us to have the kind of forecasting we have in weather forecasting and longer range outlooks. Human beings have always craved foresight about what's coming ahead for them and they should be prepared of, and we're the first generation that has any capacity to develop that kind of foresight in substantive scientifically sound actionable ways and we're babies in terms of learning how to factor that into our decision making.

Announcer: That's Kathryn Sullivan, administrator for NOAA, who saw Earth from the Space Shuttle Challenger in 1984. Now let's join Greg Dalton for the second half of our program at The Commonwealth Club.

[END CLIMATE ONE MINUTE]

Greg Dalton: We turn now to protecting existing property along the Bay and constructing new buildings when no one is certain where the water line is going to be in 10 or 20 years. Now joining us, we have Will Travis former Executive Director of The Bay Conservation and Development Commission the state agency that regulates land along the Bay. He's the author of the line I stole at the top of the show, saying the San Francisco Bay - coming to a neighborhood near you. Charlie Long is a real estate developer and co-chair of a report tackling sea level rise initiative at the Urban Land Institute, a real estate industry group. Margie O'Driscoll is an advisor to an architectural competition called Resilient by Design, an effort to envision how the Bay Area can protect its buildings and way of life from a creeping shoreline. Let's welcome them to Climate One.

[Applause]

Will Travis, what are our options? We've heard about the sea is going to rise much more in the next couple decades than it did last century. What are our choices for protecting life and property around the Bay?

Will Travis: Well, the two choices are basically fight or flight. You can either build up a wall and try to protect the area or you can build farther back and higher up.

Greg Dalton: And okay, so how we're going to go through the process of deciding which one to do, where?

Will Travis: Well, we've got the, the Bay Area has been described as being more Balkanized than the Balkans. We have 110 local governments and 55 of them front on San Francisco Bay. And generally speaking, when a regional agency comes in and says we're going to do a regional plan, the local governments object. So we're going through a process now of working through with all those

local governments. Having them acknowledge the problem, do a vulnerability analysis and come up with their own plans. And we hope that that mosaic will have some coherency to it.

Greg Dalton: Charlie Long, what are developers doing? There's still a lot of development happening in Mission Bay other places around the Bay, you know, billions of dollars of investment going in. You're very connected to the development community The Urban Land Institute, what are their plans?

Charles Long: Well I think the Urban Land Institute, which is a non-profit organization believe it or not, that does research on real estate development is very, very interested in this problem, just from the point of view of creating an informed public that can engage in the issue. And we did this report that Will Travis was involved in called tackling sea level rise back in 2014.

And we really observed the difficulties that exist. Trav talked about 110 jurisdictions. This is an inherently interjurisdictional problem. And the development community is concerned that the approach to solving the problem is sort of one-off. There is no ongoing effort. We looked at several sub regional initiatives, Silicon Valley, the ART project the BCDC was supporting. And they're just, there are sort of episodes in trying to put something together. We need to have an ongoing process we need to embed this in the capital planning process for jurisdictions. We need to have some regional leadership, which has frankly been absent. And we need to have some clear standards for not only new development, but we also need some funding mechanisms to take care of existing development.

Because the magnitude of the problem for existing development is like 100 times larger than the magnitude of problem for new development. New development can basically all by itself protect itself, but as an example, the Brooklyn basin project in Oakland has protections built into it. But nothing has been done to protect downtown Oakland. And so we need to have a funding source. We need to identify funding sources that take care of protecting existing development as much as we need to have standards for new development.

Greg Dalton: So if you think the Bay Area is expensive now, wait 'till we have to start to pay for all of this stuff, more fun coming. Okay Margie O'Driscoll, what have we learned from Superstorm Sandy? People in New York anticipated something like that happening. Scientists anticipated it and they thought they had a couple of decades to plan for it. And then the New York Stock Exchange was flooded, and Manhattan went dark earlier than even some of the people who are looking at it realized. What have we learned from that?

Margie O'Driscoll: Well I think it's fundamental human nature that we don't want to believe the bad things that can happen. We want to be optimistic; we want to believe that only the good will happen. And I think that what we're starting to see in the Bay Area where we have a strong belief that climate change is real and things are changing people are actually beginning to see those changes in their communities. They're seeing creeks overflowing; they're seeing the water as we saw a little earlier, the water shifting over the Embarcadero, that's sort of new imagery. So people are starting to actually see with their eyes the changes which are happening here on the planet and here in our Bay Area.

It used to be, if you asked my son who's 17 what climate change was, he said it was something to do with polar bears in Alaska. And I think that the reality is people are starting to see it now in our community. And once you see it in your community it feels a little more real. And I think that there's a growing awareness here within the Bay Area that we are starting to see it and some of our communities around the Bay who are suffering the most with equity issues and other kinds of vulnerability are those most in line with the flooding and sea level rise which will be happening

around the Bay. And that's a sort of a growing issue for I think a number of our mayors and small communities around the Bay thinking some of our most vulnerable populations are in line for a changing day. And the Bay has always changed, right. So the Bay that we know it today people like me who are born here in the last century, you know, in 1840 it was a different Bay before the gold rush. And so it changed then and it's changing now. And how do we all learn to adapt and respond to the change that we're starting to see now in the Bay that really defines us as a community.

Greg Dalton: Margie O'Driscoll, I want to stay with you and ask some of the positive and negative stories from that New York, New Jersey experience. There are some things that were funded very large levels and there are also was the story of Hoboken, which was flooded and had a campaign to build some levees to protect it from happening again. And the city said, nah, no thanks, we don't want those ugly things. So they are vulnerable for it to happen again. And that's a case where they could had money to protect themselves and they chose not to.

Margie O'Driscoll: So I'll step back and say that he's giving me the perfect setup to talk about the real reason that I'm here which is that, actually there are people in the Bay Area who have been concerned about this issue. And it has to do with regional agencies like BCDC and the city of San Francisco and also corporations who are interested in creating a Bay Area wide competition called Resilient by Design. That's based on a competition that happened after Hurricane Sandy in New York. CNN called this competition, which was very successful in New York, one of the best ideas of 2013. And it was an idea that you could actually use design thinking and designers to go into communities and actually work with communities to develop resilient solutions to protect communities which were severely damaged after hurricane Sandy. And the reason that the federal government was interested in supporting this effort, although they were a little skeptical I will say in the beginning is that they saw it as an opportunity to build back stronger. For anyone who was here in the 1989 earthquake knows, we tried to rebuild back and think about what San Francisco and the Bay Area would look like after the '89 earthquake.

Well, Superstorm Sandy was so much worse, so much bigger than anything that we saw in 1989 that we know that we need to be better prepared here in the Bay Area to respond. So the idea of this competition is that it would happen all throughout the Bay Area. We would identify sites of great vulnerability and design teams would work quite intimately with communities to try and develop solutions and responses which are not just a wall along the Bay but potentially give the community benefit and that is what happened after Hurricane Sandy. Design teams went into communities and worked with communities to help resolve issues that were endemic to some of those areas, Hunts Point, Staten Island, other neighborhoods around the three states which are affected by hurricane Sandy and so what were the big ideas. So some of the ideas were walls but others have the ideas where a restoration of oyster beds which had been a huge industry around Staten Island. Others were, you know, how do we create more parkland around lower Manhattan that serves essentially as a storm barrier but doesn't feel like a wall. It's actually something you could enjoy and walk along and be a part of every day as part of your daily life. So the idea of this competition is how do you work with designers in community to help bring benefit today that's also going to create a more physical resilient structure over time to respond to the challenges that we will see with sea level rise and storm surge.

Greg Dalton: Will Travis, if someone lives in Piedmont or up near Mount Tam or on the ridge and San Mateo, live away from the Bay on high elevation. Why should they care about sea level rise?

Will Travis: Well because they might want to drink water or flush their toilet or get to their job or get to their kids school or --

Greg Dalton: Drive to the airport.

Will Travis: Anything like that. Yeah, it is fascinating. People tend to look at sea level rise maps and they always and look where's my house. Oh, I don't have to worry about it.

But we have an interconnected system if you think about the Bay; it's largely surrounded by transportation infrastructure. It's either BART lines, rail lines, freeways, airport, ports. So our whole transportation system, which is the whole aerial system that allows us to move around, is all right at the Bay shoreline. So it doesn't matter where you live; when you have sea level rise it'll impact you. Even you Greg up there on the hills.

Margie O'Driscoll: I was just going to interject that most of our sewage treatment plants are also along the Bay.

Greg Dalton: Charlie Long, you develop property. Have you looked at bay front property, Union, Jack London Square, et cetera, where are you investing in putting your dollars?

[00:56:59] **Charles Long**: Well, my projects are in the uptown district of Oakland. And so I have not developed or looked at property that is affected by sea level rise. I will say that having been a city manager for places, I don't think that this problem is a matter of a lack of authority on the part of jurisdictions; I think it's a lack of will. Because frankly jurisdictions could put provisions in their general plan that essentially establish a standard for new development in terms of what they have to protect against. And so to the extent that there is an aroused and aware public that demands that kind of standard that is perfectly possible to do.

Greg Dalton: Will Travis, tell us some places that you think are doing a good job, if I were to think about where I'm going to move in 10 or 20 years. What are some neighborhoods developments around the Bay that are doing it right? Make us, lift us up here.

Will Travis: Treasure Island is a spectacularly elegant solution. The only thing wrong with Treasure Island as a new neighborhood is you have to rely on the Bay Bridge to get you there. In an earthquake it has the stability of soup and it's going to flood. But other than that it's a fine place. And they have come up with a solution which deals with the earthquake safety by compacting the material. They raise the ground elevation. They keep it in a small area so everybody will be within walking distance of a ferry. And then they reserve the space around the outside so that over time they can build an ever higher levee and put in place financial mechanisms so that the people who live there will pay for it, not us taxpayers. There are a number of projects along the shoreline that are doing this.

But I want to take the issue with something Charlie said, I don't think it's will, I just don't think we know what to do. Because you can establish a standard but what's the standard? Because I can assure you, I can guarantee you that the way to make money is to get an expert on sea level rise to tell you exactly how high the sea will be at any day in the future and bet against them. And then get a second one and in that way you're sure you won't lose any money. And then get a third one and then you start making money. Nobody knows, it's just going to keep going up higher and higher and higher. So I think the challenge is to design and build our cities in a way that it doesn't matter. So that we design resiliency into them with new techniques for building, buildings that are there for only a short period of time, buildings that can be taken apart and move, buildings that'll flow.

This is why I think the design competition is such a wonderful idea. When we talk about resilience, I mentioned we're trying to build resilient cities and mentioned it to my daughter. She looked at me, she said, what are you talking about dad, rubber buildings? Nobody knows. But having a design competition that will generate images of this is what it could be - that I think will stimulate people to think new ways, new ideas. But I think the challenge is we're aware of the problem, we just don't

know what to do because we've never faced this before.

Greg Dalton: Dealing with uncertainty. There's actually a new term, volatility, uncertainty, chaos, there's a new military term for encompassing these changes. We're talking about sea level rise at Climate One with Charlie Long, a real estate developer. Margie O'Driscoll, a design competition expert and Will Travis, former head of the Bay Conservation and Development Commission.

We're going to go to our lightning round and ask Will Travis, yes or no, new waterfront buildings bring profits for investors and tax revenues for cities. Both have an incentive to avoid thinking about rising seas that may crash their party?

Will Travis: No.

Greg Dalton: Margie O'Driscoll, you formerly worked for the San Francisco mayor's office. Nobody in San Francisco government has the knowledge and power to stop waterfront development at risk from rising seas. No one at City Hall really owns this issue, yes or no?

Margie O'Driscoll: I think they're working on it.

Greg Dalton: Charlie Long, some owners of property along the Bay are going to lose money when the market realizes those assets come with a risk that was undervalued for a long time?

Charles Long: Yes.

Greg Dalton: Charlie Long, and then those property owners will ask for a government bailout?

Charles Long: Yes.

Greg Dalton: Will Travis, climate disruption will hurt Americans more than even your liberal Berkeley friends realize?

Will Travis: Are you talking about --

[Laughter]

-- Berkeley realizes everything.

[Laughter]

Yes, yes.

Greg Dalton: Yes? Also Will Travis, the Bay Conservation and Development Commission tried to impose stronger rules on waterfront development and was beaten back by the real estate industry?

Will Travis: No.

Greg Dalton: Margie O'Driscoll, you're a former head of the San Francisco Arts Commission. Art can help people envision and create ~~waterfront, helping create and envision~~ waterfront defenses that are beautiful and functional. Creating public spaces that are even better than the ones we have now?

Margie O'Driscoll: Yeah.

[Laughter]

Greg Dalton: Art is part of it. Charlie Long, if a distant relative passed away and left you their house in Stinson Beach, what would you do? Sell it as fast as possible or keep it and pass it on to future generations?

Will Travis: Party time.

Charles Long: Oh gee. I would keep it.

Greg Dalton: Margie O'Driscoll, if you were designing a new building on the waterfront, where would you put the computer servers and electrical panels?

Margie O'Driscoll: In the same place that they're ending up in lower Manhattan, which is on the roof. And where are yours for this new building, that you're doing?

Greg Dalton: I'm not sure.

[Laughter]

Will Travis, supposed a friend calls you and says they want to move to San Francisco and buy a home near the thriving waterfront. Would you say go for it I look forward to coming over and enjoying your views or would you say, uh, you might want to think about the Oakland hills?

Will Travis: You might want to think about the Oakland hills.

Greg Dalton: Alright, that ends, how do they do? I think they did pretty well.

[Applause]

Will Travis, you've talked about sort of this changing waterline. This thing that's been constant, it's going to be changing in our life. And some people think, as Margie O'Driscoll touched on earlier that this sort of a generational baseline. Each generation knows the Bay, it's different than the previous generation and we kind of mourn the loss of something, but future generations might just accept the Bay that is defended in very different than, we're attached to things the way they are but future generations may have no problem with this. That's what they've always known.

Will Travis: No, I my personal experience is that's quite true. BCDC got interested in sea level rise when the New Yorker published some articles in 2005. Elizabeth Kolbert wrote a series called Climate of Man. And she talked about a meter of sea level rise. And I asked my staff at BCDC to show me what that would look like and that was my own personal oh shit moment. Because what the Bay will look like with a meter sea level rise is pretty much what it look like in 1849. Because we've filled 240 square miles but we only filled it high enough to get it above sea level of the past. So the water will just go up over, it'll just search for that original shoreline.

So climate change came to me 10 years ago. So I was 63 years old. My students at Berkeley have had climate change all of their lives. So when I talk to them about this issue they look at me, yeah, sure. And for them, the notion of a shoreline which is moving is something they just accept. For me, the shoreline is where the shoreline always was. And that's where it'll always be. So this notion of a moving shoreline and designing and building to accommodate that is very difficult for me. But the students find it challenging and interesting.

Greg Dalton: Charlie Long, the Bay Area governments have designated some areas for preferred housing development because we don't have enough housing in the Bay Area. There should be 50,000 more units of housing built every year to satisfy demand and lower prices and get people to

be able to live near where they work. Yet, some of those preferred areas are precisely in the kind of at risk areas we're talking about.

Charles Long: The overlap between the preferred, the priority development areas and the inundation areas is extraordinary. And in some ways, you know, you sort of look at it and you say what were they thinking? And so that issue needs to be addressed very, very clearly in terms of development standards. New development frankly to the extent that and Trav and I can talk about whether a standard is important or adaptability and resilience is important. But new development can accommodate sea level rise in a variety of ways because it can anticipate the issue of the magnitude of the problem for existing development, though frankly is maybe 100 times greater in terms of the funding demand that is required.

And to the extent that jurisdictions are ignoring the existing development impacts as well as not establishing standards for new development, we're going to end up with catastrophes. So this is a two-part problem. Existing and new, and both of those need to be paid attention to, and frankly the leadership so far -- except for Will Travis who has provided a huge amount of leadership and BCDC has provided a huge amount of leadership. The leadership has not been at the regional level at a sufficient amount.

Greg Dalton: Charlie Long is a real estate developer. We're talking about sea level rise at Climate One. Welcome to Climate One.

Male Participant: Yeah, isn't all this really talking about moving the deck chairs on the Titanic if we don't control greenhouse gases?

Greg Dalton: Will Travis. Wasn't that long ago that even talking about these things was considered a sin?

Will Travis: That's right. The problem we have is, yes, we should and we must control greenhouse gases. It's just absolutely essential. We don't want to make the problem any worse. The difficulty is the sea level rise we've experienced, and we will experience in the future is largely a result of the greenhouse gases that are already in the system. So we can slow the rate of sea level rise but we can't stop it.

Greg Dalton: Let's go to our next question. Welcome to Climate One.

Male Participant: My belief is that at some point we will either be living in the new Venice or we will have to leave the Bay Area. As far as I know, I've heard that sea level rise 6 feet by 2,100. If that rate was steady that means in 15 years we'll have 1 foot of sea level rise. Now, do you think that we will be able to live in a San Francisco type Venice?

Greg Dalton: Who would like to tackle that? Margie O'Driscoll.

Margie O'Driscoll: Yeah, I think you're starting to see some really interesting models being implemented around the world. You know, we're not the first people who've dealt with the change of an overabundance of water, which I just have to add is slightly ironic when you think that we're also in a drought at the same time. So there are lessons that we can learn especially from the Dutch, but also from other communities around the world about how people have adapted, how they've lived and they've made changes. And we are going to have to make changes in how we interact with the bay because the bay line is going to be changing. What those solutions are, I leave up to the great design minds of our Bay Area and the world beyond.

I don't know what those all are but we need to start getting in there and start figuring out what

those might be and how those can protect some of our most vulnerable communities.

Greg Dalton: Charlie Long.

Charles Long: I agree with everything that Margie said and the challenge we face in the Bay Area as well as throughout the United States is nobody's in charge. The Netherlands has been dealing with this problem for 500 years but there is a different decision-making mechanism there where okay, we need to have houses that float. We need to have byways that bypass developed areas and we need to develop a decision-making mechanism here in the Bay Area that essentially recognizes the interconnectedness of this problem. Because to the extent that we do not recognize the interconnectedness of the problem and develop policies that create alignment among the 110 cities and counties and the multiple special districts and the multiple transit agencies and the utilities. We are going to not be successful at dealing with this problem. It's not a problem that is unsolvable; it's a problem that we need to get alignment among all of the decision-makers on how to solve it.

Greg Dalton: And Will Travis, how is the Bay Area going to decide. Some people think that downtown San Francisco will be protected. There's so much money there, they will find a way $4 to $6 billion for a seawall. But what about Vallejo, Alameda, East Palo Alto, places where people are more vulnerable and have less money to protect themselves?

Will Travis: Well, unfortunately sea level rise is like every other problem. I have a colleague at Lawrence Berkeley lab who said he thinks that the final slide in every presentation on climate change should always be the same. And that slide says "and the poor get screwed."

Greg Dalton: Don't know where to go after that one. Yeah, it reflects the overall system.

Let's wrap up. I want to end by asking each of you what gives you hope. We've looked at some seas, you know, coming to our doorstep. Margie O'Driscoll, what gives you hope?

Margie O'Driscoll: I think that design thinking is going to help us think our way out of this. And I say that not just in the physical structure of terms of architectural and design solutions to sea level rise, but in new ways of thinking in how we live our lives in much the way that Travis originally started his remarks.

Greg Dalton: Looking to nature for some of the solutions perhaps. Charlie Long, what gives you hope?

Charles Long: I think, the thing that gives me hope is that we have a lot of effort that is going on now that frankly is greater than two years ago. And so I think the momentum is starting to build; Margie's organization frankly is a good example of the kind of momentum that is building toward creating the kinds of solutions that we need to have for this problem.

Greg Dalton: Good things are happening. Will Travis, last word. What gives you hope?

Will Travis: In the Bay Area, climate change isn't being addressed as an environmental problem it's being addressed as an economic imperative. And the business community is actively engaged in this because they've realized there are a lot of business opportunities if you deal with climate change aggressively. And ultimately, it doesn't matter what problem we're dealing with, it's the bottom line that matters. And they're putting the bottom line into this.

Greg Dalton: We've been talking about sea level rise with Will Travis, former head of the Bay Conservation and Development Commission. Margie O'Driscoll, a design expert and Charlie Long, a developer in the Bay Area. I'm Greg Dalton. I'd like to thank you all for joining the conversation and

thank our audience here at the Commonwealth Club. You can listen to the podcast in iTunes at our website climateone.org. Thank you everyone for coming and joining us.

[Applause]