San Francisco Bay Conservation and Development Commission

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October 30, 2019

TO: All Financing the Future Working Group Members

FROM: Lawrence J. Goldzband, Executive Director (415/352-3653; larry.goldzband@bcdc.ca.gov)
Steve Goldbeck, Chief Deputy Director (415/352-3611; steve.goldbeck@bcdc.ca.gov)

SUBJECT: Draft Meeting Summary of June 6, 2019 Financing the Future Working Group Meeting

1. **Call to Order.** The meeting was called to order by Acting Chair Holtzman at the Bay Area Metro Center, 375 Beale Street, Ohlone Room, First Floor, San Francisco, California at 10:34 a.m.

2. **Roll Call.** Present were Group Members: Chair Zack Wasserman, Jeff Holzman, Claire Jahns, Michael Paparian and Chad Spitler.

Not present were Group Members: Commissioner Jennifer Lucchesi, Commissioner Aaron Peskin, Commissioner Katherin Sears, ECRB Member Robert "Bob" Battalio, James "Jim" Cervantes, Justin Cooper, Roger Davis, Mark Northcross and Paul Rosenstiel.

3. **Approval of the March 21, 2019 Meeting Summary.** Acting Chair Holtzman asked for a motion and a second to adopt the summary of May 16, 2019.

MOTION: Member Paparian moved approval of the Meeting Summary, seconded by Member Spitler. The motion passed by voice vote with no objections or abstentions.

4. **An introduction to Mike Montgomery, the new Executive Director of the San Francisco Bay Regional Water Quality Control Board, and his interest in working with BCDC on financing issues.** Executive Director Goldzband Announced: Bruce Wolf was the Executive Director of the Regional Water Quality Board for 15 years and retired in November or December and then came back for a little while when the Board was in the midst of selecting a new person.

We are thrilled that the Board selected Mike Montgomery who is sitting here today. I gave Mike a few weeks and we met for coffee and he asked me if I knew Jim Burroughs. I have known Jim for 35 years because we worked together in Washington, D.C.

Mike told me he knew all of Jim's roommates back in D.C. We ended up playing the name game for at least 15 minutes.

We realized that Mike will be a spectacular person with whom BCDC will work. He looked at me and said, tell me about this financing stuff you are interested in. I thought I would have Mike talk for five or ten minutes and express how he sees the Water Board working and how that connects with finance.

Mr. Mike Montgomery addressed the Working Group: I would like to talk about what we are doing at the Water Board in the regulatory framework some of which going to evolve over the next few months and then talk a little bit about some sort of opinions around the challenge that we have in accelerating adaptation efforts within the Bay at a rate that will actually keep pace with the problem because right now there are a lot of people working on a lot of great solutions; there are a lot of pieces and bring them together and accelerating them is a big challenge.

The fact that you formed this Committee and are sincerely looking at the issues of financing which are principle challenges to accelerating climate adaptation in the Bay is a great thing.

By way of background before coming to the Water Board I was with E.P.A. for about 32 years. I spent most of that time in cleanup programs a lot of it in water regulation and drinking water programs.

And while I was in the drinking water programs I had the responsibility for overseeing the State Water Infrastructure Revolving Loan Fund Programs for the five states with U.S. EPA, Region 9.

I got a little bit of familiarity as we would do annual audits of those revolving-loans, fund programs to make sure that they were adequately using the capitalization funds that were provided through those programs to make sure that they were funding the right types of projects; that they were putting the money on the street and that they were meeting the infrastructure requirements of those programs for drinking water and for water infrastructure.

I had the pleasure towards the end of my tenure at EPA as a part of a federal, executive, development program to work here in this building for Jack Broadbent here at the Air District and to help them with a new program that they were establishing to provide low-cost financing to stationary sources to reduce greenhouse gas emissions of a mitigation program within their Technology Office within their larger, incentives programs.

They push about 100 million dollars out the door in incentives for mobile sources but they wanted to do more for stationary sources. I worked for Jack for five months and helped them do some of the groundwork to design that program which is now stood up involves loan guarantees for private entities and a zero-interest, financing mechanism through the California I-Bank.

That is a little background mainly in the environmental-program, regulatory world but I worked a little bit on the public-to-public finance and public-to-private finance in the environmental area.

One important thing that you all are doing and that we are also trying to do is look at how do we lay the path forward for entities that are regulated around these types of projects?

We are in the midst of a project to review and possibly revise our Basin Plan to make sure that we are clear with project proponents about what the requirements are. We know there has been quite a bit of concerns that the regulatory process around these adaptation projects is burdensome and that they get different instructions from different regulatory entities. I am encouraged by the formation of the BRRIT Association with Measure AA.

We will likely be housing the BRRIT and the policy group that will be overseeing it will hopefully work hard to address some of the issues that project proponents have in the regulatory context.

We will be working on that around the same time that you all are working on your efforts. That is very positive.

We are also using the Adaptation Atlas along with the Ocean Protection Council's Guidelines in the regulatory documents that we now produce both the 401 Certifications and our waste-disposal requirements for projects that are in the Bay and in the Bay margin whether they be landfills or different types of projects.

We are now using the Adaptation Atlas as a tool to kind of point the regulated community towards solutions that we think will work. Most of you probably know we were one principal funders of the Adaptation Atlas itself.

I am really encouraged that we are really making the path clear for people as to how to get through the regulatory process at least with regards to our pieces.

Member Spitler asked: What is the mandate of the Water Quality Board?

Mr. Montgomery replied: We basically implement state and federal water-quality standards and we also do cleanup for groundwater. So it basically is all groundwater, all surface water, all the state regs and the federal regs around that.

Mr. Spitler further asked: And for San Francisco Bay specifically?

Mr. Montgomery answered: For San Francisco Bay and any waters of the state which the guidelines are out on what is determined to be a water of the state and it was recently updated in the state's Dredge and Fill Policy which was rolled out a couple of months ago. So anything that is defined as a water of the state.

Our requirements are outlined in our Basin Plan.

Executive Director Goldzband stated: Not everybody understands what the Water Board does me included. But on the permitting side when a project comes before BCDC one of the requirements that BCDC has prior to approving the permit is that the water-quality certification is actually delivered by the Water Board.

And the Water Board does that on behalf of the federal EPA et cetera and the state as part of a clean-water program.

So when you are building something the discharges that will go into the Bay or into the waters of the state have to be regulated by the Water Board within their jurisdiction.

We are not going to approve a permit at BCDC unless we know they have permitted the discharges.

Mr. Montgomery continued: And there are nine, regional, water boards. And we all have governor-appointed boards and then there is a state board which is also a governor-appointed board.

And we share authorities with them depending upon the regulatory framework. In some cases people who are regulated will be regulated by statewide program and in some cases they will be regulated by programs that we put in place for our region based on our priorities for the basin.

Executive Director Goldzband stated: And one of the Commissioners of BCDC is appointed to BCDC by the Water Board – a sitting member of the Water Board sits on BCDC.

Mr. Montgomery continued: There are lots of programs that can fund the types of projects that are in the Adaptation Atlas.

There is Measure AA which is an outstanding program, local solution. There are funds through Fish and Game. There are funds through the Coastal Conservancy. There is a possibility of funds through the Clean Water State Revolving Loan Fund Program.

It hasn't been accessed much but there is a program at the California Infrastructure Bank that can provide grant funding.

I think that those are all being fairly, well utilized but I was looking at the notes from your last meeting and one of the barriers to accelerating adaptation is that the level of sophistication required to access all of these different programs is a significant reach for local government and it is almost an impossible reach for local government that isn't well resourced.

So if you have a disadvantaged community the likelihood that they are going to be able to put together a program that is going to cap all of these small, grant programs that exist in different contexts that have different eligibility requirements that have different funding and application and timeframes, that have their own sets of requirements around match, their own sets of requirements around environmental compliance is a big challenge.

I think that is one issue that I have seen from the minutes of this group is taking on and that is one that needs to be solved. There are some different ways to try and resolve that.

Another one is we recently re-issued a permit for the utilities that are discharging into the Bay around nutrient management. So nutrients are discharged to the Bay from wastewater, treatment plants. They are very expensive to handle.

The environmental concern with nutrients is you get hazardous, algal blooms. We haven't had them. The current conditions of the Bay make it fairly resilient to hazardous, algal blooms but those conditions are changing over time.

And so we are working with BACWA and the utilities and they are dedicating funds to looking at green-infrastructure, near-shore discharges and different ways for treating nutrients.

My point in bringing that up is what we will see through the regulatory actions that we are taking is that we are going be encouraging utilities, the flood-control entities, the stormwater entities to be looking at the solutions in the Adaptation Atlas.

And what we need to find for them is a way for them to go beyond the least-cost options and be able to implement the multi-benefits, higher-value solutions that are identified in the Adaptation Atlas without sufficient additional costs to the local taxpayers or ratepayers.

So it is really a question of how do you give them a tool that helps them to do the better solutions that are outlined in the Adaptation Atlas without taking on significant, additional, financial burdens.

I think there is a possibility that the state can play a role in that. I think there is a possibility that there may be a way to have some federal participation in that.

I don't think the entire financial burden should fall to local governments.

Making something available to those entities that allows them to do in a way what they already have to do requires a financing program that is durable and dedicated and represents a significant cost savings over general-bond funding or other sources of revenues that these entities have available to them.

So putting projects like this together more complicated than your basic, water-infrastructure projects; if you want to get a water-infrastructure project through environmental compliance and design and shovel-ready – most of the major materials are available on the market.

If you want to do a lot of these adaptation efforts they are a particular challenge around them. A lot of require a lot of sediment. You have to identify sediment sources. Those sediment sources become available in their own cycles.

And then you have to maybe negotiate with the Army Corps or with the entity that is going to get the sediment to your site.

So these projects are harder than your basic, gray- infrastructure, water projects. Because they are harder you need to be fairly certain that you are going to have access to some funds.

So that is why there needs to be something that is dedicated to this purpose.

What the range of adaptation things you would fund through a dedicated fund; that is something that you could determine by really thinking hard as policy people about what are the activities we really want to encourage that go beyond the norm?

And then the other aspect I mentioned was durable. So financing in this context is better than grant programs. It is a better sell. There is more of an appetite potentially to ask for funds to capitalize a financing program than there is for us to go and ask for funds that are frankly just one-direction, grant funds that aren't durable as an incentive program.

There are ways that we could explore similar to the model at the Air District has put to make those durable, financial-incentive programs very low cost – lower than entities would get on the bond market.

Member Spitler asked: So if you are a bond issuer, say utility, would the Adaptation Atlas be a resource to you and if so in what ways? If you are a utility and you want to do a bond issuance for some sort of water project would the Adaptation Atlas be a resource that you should look to for help to guide the project objectives?

Mr. Montgomery responded: Yes, absolutely. I am not intimately familiar with the Ora Loma Project but that is one of the pilots that has been done around a horizontal-levee project that was associated with a utility. My understanding is was associated with the Ora Loma Utility.

So that is an example of you need to reinforce your wastewater infrastructure and how you go about doing that. One is you have to do it. It's a cost of doing business.

The question is how you do it. And if the greener option is more expensive that is a burden on the ratepayers. I think that we can lower that cost burden of doing possibly the more expensive, adaptive solution rather than the less-expensive one that is really going to exacerbate the problem because the Bay is essentially a bathtub. If you put hard infrastructure all around the Bay and the sea level rises we are just going to complicate environmental conditions.

The Adaptation Atlas is publicly available and it came out last month. It is a fabulous document guide.

I am three months into this and this isn't necessarily squarely in my wheelhouse. My job as Executive Officer for the Water Board is to run our regulatory programs but I sincerely believe that if we are trying to reach and address this problem that is on the margin of something that is in some ways a regulatory requirement but we are asking folks to do more; we need to be thinking about incentives. We need to be thinking about how to lower the costs of doing the right thing.

Member Paparian commented: Your mentioning of the Revolving Fund triggered a couple of thoughts. And I am not sure we've actually talked about the Revolving Fund.

Executive Director Goldzband chimed in: We haven't as a matter. You and I have talked about it but we haven't had a presentation on it.

Member Paparian continued: I get the two funds mixed up but my points are going to be the same.

The Revolving Fund is used to provide loans to local governments to upgrade systems.

Mr. Montgomery stated: Mostly utilities.

Member Paparian continued: And they are relatively small but when you add them up it's relatively big. And so what the state Water Board has done in conjunction with the Infrastructure Bank is to package those loans and issue a bond – there is nothing unusual about this in the bond world – and then use those bond funds to do additional loans and leverage the money many times over in that way.

So you have 100 million dollars in loans; you issue a 90 million dollar bond, whatever the numbers are – you got 90 million dollars then you issue a 70 million dollar bond and whatever it is, so you have a lot of leverage there.

So there is a potential there in that model for financing. But there is also something additional. What the state of New York did five or six years ago was convince EPA that they could do energy-efficiency projects with the bond proceeds from a water, revolving fund and the justification was that it had to do with assuring that the waters were clean and if you had less energy production causing less air pollution upstream, causing less acidification – EPA believed them, they convinced them so they took the Revolving Fund monies and used them for energy efficiency projects.

Now the question for us would be – could you take the Revolving Fund and use it as leverage to issue a bond for something like saltwater intrusion projects or other things that you could convince U.S. EPA that there is a nexus to the clean water and safe, drinking water?

Mr. Montgomery asked: So what you are referring to is WIFIA, the Water Infrastructure Financing Innovation Act? So that is a federal program that does lend money for water-infrastructure projects.

Member Paparian replied: No this was either the Safe Drinking Water or the Clean Water – it was one of the two funds.

Mr. Montgomery explained: So the state's Revolving Water Funds are capitalized by the federal government. Every year Congress enacts based on a needs survey that is done nationally for utilities – they enact funding that capitalizes these revolving-loan funds, both for the Drinking Water one and a Clean Water one.

And the intent, the Clean Water Revolving Loan Fund Program replaced an earlier program that was a grant program. Folks that were involved in the environmental field back in the late 80s early 90s probably remember the Water Construction Grants Program. So that morphed into the Clean Water Revolving Loan Fund Program.

States were authorized to create these water-infrastructure banks that were capitalized by the federal government and there are eligibility requirements for projects that are in that universe.

And they would extend to some of the things in the Adaptation Atlas but not all. Some things would fall within the eligible criteria the main point of which the purpose of the Clean Water Revolving Loan Fund is to lower the cost to compliance with the Clean Water Act.

In other words the federal government has realized – we are burdening these utilities with quite a lot of demands for treating wastewater and we want to make it a little easier for them.

So that program was created and it is managed by the state of California and you are right they have basically taken their loan portfolio, gone to the I Bank and said, we want to leverage that loan portfolio and we want to issue bonds that increase the pot of money we have available.

That pot of money is still subject to the eligibility requirements of the Clean Water Revolving Loan Fund Program.

Now separate to that a number of years ago large cities went to Congress and said Revolving Loan Fund programs aren't meeting our needs. The eligibility requirements are too narrow and we have really, large 150 to 200 million dollar projects that would wipe out the state Revolving Loan Fund Programs.

And so the Federal Water Infrastructure Innovation Act passed and Congress put 20 million dollars in EPA's hands and said, work with Treasury create a federal, lending program with broader eligibility requirements that would basically charge the base, federal, treasury rate.

So really low interests, broader eligibility but you had to have big projects. You had to have bigger match but you could finance them.

So that has been a success. That has grown. The San Francisco PUC got a really big loan. Some desalination projects in Southern California got loans. There are water-recycling projects that are part of that portfolio. California has done pretty well with that.

Whether or not WIFIA would be a target for a package of projects that would be adaptation projects is something that I talked with Division of Financial Assistance about in California because ideally if you were to put a package of portfolio projects together and go to the State and you want the State to apply to the feds for that program the biggest challenge that we face if we really want to go and make a case for capitalizing a dedicated, durable, financial-incentive project is I don't see a really solid list of – here's the pipeline of projects that are in the planning stage for all of the local jurisdictions that are in the Bay, this is the phase that they are at, these are the project proponents; is it a utility, is it flood-control project, is it a stormwater project, it is a private project, is it an NGO project but if you are going to go and make a case for we need 100 million dollars or 500 million dollars to capitalize a Revolving Loan Fund Program you've got to have a project list that passes the lab test.

The project proponents that the State of the feds can call up and say, hey your name is on this is this a real project? And someone will answer the phone and say, yes it is and we do need to finance this project.

So that is the challenge that we face is how and who helps to organize that? It is not the Water Board. The Bay Restoration Authority is working in this phase. Maybe there is another entity. You really want somebody that is at that interface of state and local government that is in this space.

You need to do a customer survey to find out how to design a program and then you need to come up with a legitimate project list.

It is the type of planning that I have frankly have seen that the Air District does and the air space but we don't at the Water Board we don't have people that work in planning in that sense. Even though from a regulatory standpoint we are touching all of the parties involved.

Executive Director Goldzband noted: You don't have a separate planning unit like BCDC has a planning unit.

Mr. Montgomery agreed: Yes. We are regulating the projects. We are regulating the dredgers. We are regulating the dredging projects. We are the regulating the build-out projects. If it is a utility we are regulating that through a separate permit. We are regulating all of these parties but we are not involved in regional planning.

Member Jahns asked: Couldn't you look at a list of regulated projects and then look at sea level rise and adaptation needs and use that to populate a list? I can see how a regulator might not want to do that but maybe that is a role for regional planning.

Mr. Montgomery answered: We could and what we have asked is I don't entirely understand the mechanism but there is the Eco Atlas which is maintained at SFEI and we've asked entities to when they come into our regulatory universe to put the data for their project in the Eco Atlas.

The issue is if you are trying to show that there is a pipeline of projects that would be funded over say a five or ten year time horizon you need to go deeper into the early planning stages than when it comes to us.

Commissioner Holzman stated: SFEI just finished two years of studying every inch of the shoreline. They probably have an idea of what the projects might need to be.

Executive Director Goldzband chimed in: My assumption is that we will meet in August. We are looking to do a Commission workshop on finance in the third Thursday of October and what we thought is that the next meeting would be really going over what could be in that as part of that workshop. Why don't you and I talk next week and come back in August with a more, fully-developed list of questions and ideas about the Revolving Loan Fund and the Infrastructure Bank. And we are going to rope in Michael Paparian to help us do that if that is okay.

Mr. Montgomery replied: After my initial conversation with Larry I had already had some calls set up with the I Bank and with the Commission on Financial Assistance. I did already mention to them that there was going to a meeting in October.

And then the question we will talk about is other entities that we may want to bring to the table.

5. **An update on the FtF/Resilient by Design consultation process.** Executive Director Goldzband announced: I want to skip Number 5 on the Agenda because neither Michael nor Mark could be here today. But I want to have Nick sort of start his process which will have an awful lot to do with what they would normally do.

6. **A briefing by BCDC's Adapting to Rising Tides staff on its upcoming financing white paper.** Mr. Nicolas Sander presented the following:

I work on the Adapting to Tides Team on BCDC. I want to run through what our ART Team has been thinking about. And we've been talking a lot with Larry with Michael Kleeman trying to really tie our project together because we also have the Financing White Paper piece as part of our assessments.

First I will go over briefly what ART Bay Area actually is then what this Financing White Paper is that we are aiming to write and the next steps.

ART Bay Area is aiming to adopt a regional-scale analysis to understand sea level rise impacts on four different categories we care about.

One is the regional, transportation network. The second is the most vulnerable residents. Three is future housing job growth through MTC's priority development areas and ecological systems also proxies through MTC's priority conservation areas.

This whole process is driven by stakeholders. We have a Regional Working Group that has members from local governments, community organizations. We have met 10 times so far and we have two more to go.

And this whole project is funded by Caltrans and MTC/ABAG. So we also have the scope of trying to help them understand how they can have a role in this regional adaptation effort.

So the Financing White Paper piece is part of our grant fulfillment but we were then talking about how can we make this actually useful for multiple parties? And how can we tie this together with your efforts at Financing the Future?

Going through the meeting notes from March I saw that a lot of talk was about how can we break down RbD projects into smaller, distinct components to really understand these complex projects? And then how can we tie funding concretely to those distinct pieces?

This ties into what the members were talking about how can we leverage different funds for different pieces of these complex, adaptation projects?

Talking to Michael Kleeman he spoke to San Rafael this week and there are four RbD projects that were chosen that overlap with opportunity zones that you guys discussed in March. And Michael sent this matrix out to them and hopefully get them to break their project down into more manageable pieces so that Financing the Future Working Group can really tie specific recommendations to each piece.

Currently this matrix is being sent out to those four groups to the lead and the local governments that are taking these projects on to get more information of what stage they are at and how do they see their projects broken down.

The second step will then be to identify suitable funding and financing tools to match those components. I think that is where this group comes into play a lot using also existing guides like the RbD Financing Guide that was written, the AECOM Financing Guide and here is the example of all the different financing tools that are out there. You spoke a lot about them – maybe breaking those out and then having a process where we can match those through the project components concretely.

In the matrix it would be broken down by all the project phase benefits, the co-benefits of these adaptation projects. Are there ways to frame this in order to access more pools of money?

And then there is this other piece of having the Group's input on. ART's idea was to characterize those funding options ones they could match and get a better idea about different criteria in order to have eventually a guide that is suitable for multiple projects that they can look at – this list of funding options that has been matched with specific components and get ideas about ballpark estimates, the dollar amount that can be raised by the specific tools.

How feasible is it to raise money from these tools? What is the timeframe? How long does this tool last? How reliable is it? Is it an existing tool that has been proven and shown to be used in different projects so far? Is it a purely experimental tool? How flexible is it in the used case?

You were talking about the fact that there are very specific requirements for a lot of these tools. Some are more flexible than others. The stability of the tool in regard to political change. How much does this depend on the current government? Required lead time of the tool. How long does it take projects to go from proposal, apply to the money to actually receive it?

And then the last big one is then matching these tools to specific, project types and specific project phases. Is this for planning? Is this for permitting? Is this for construction?

And then have a better idea in regards all this tied to those four case studies RbD projects broken down to components have specific financial tools matched and have those characterized.

So our first question would be and I don't know if this is the perfect time to assess this. In this setting we should have a future meeting but everyone would be – are these the right criteria? Are there ones that you think are missing? Are there ones that you think are not answerable by the group? Do you have general feedback about them?

I will be happy to take any comments.

Member Jahns asked: Are the tools compatible?

Mr. Sander replied: That's a good one, yes. Can they be used in combination at all?

Member Jahns responded: Yes for each fund one of the multiple benefits.

Commissioner Holzman asked: Is this a tool where you input your project in? Put all your criteria and everything you are trying to do and it ideally kicks back out how it matches?

Mr. Sander stated: I think that is the ultimate goal. Mr. Kleeman calls this the cookbook a kind of decision-tree guide. To make it manageable I think we should start with the RbD projects get it really narrowed down to their specific requirements because it can blow up really easily.

But the ultimate goal would be to generalize it to make it useful for other RbD projects, for other adaptation projects because there are many more to come down the line.

And really break down one of these barriers to local governments are already strained and figuring out all these different tools that are available just getting them one step closer to actually wrangling this package.

Mr. Montgomery commented: It would be helpful to have a break between funding and financing. It is easy for the language to take its use in this space to get confusing but funding is different than grant. Funding is one way and then financing is alone typically for a loan guarantee if you are a private entity.

I think flexibility is good. You can certainly break flexibility down maybe into a couple of sort of sub-categories. Are there what we would call in the revolving-fund world cross-cutters? In other words like other requirements that are put on that grant or that financing tool. For state money you are going to have to do CEQA.

Executive Director Goldzband inquired: Like a covenant?

Mr. Montgomery explained: No it's more like for example in the state Revolving Loan Fund programs there are requirements that you for American Iron and Steel Act, NEPA, the National Historic Preservation Act.

Executive Director Goldzband continued: So what other laws are you subject to?

Mr. Montgomery responded: What are the regulations that you might not otherwise kick in from the use of that tool?

Mr. Bob Spencer commented: Building on the comments of funding versus financing; I would say that it is all about funding because even if you are borrowing you need a funding source to pay it back.

I am looking at funding as or we look at it in the RbD Financing Guide as what are the revenue sources available? It could be a grant or it could be a ratepayer, revenue stream that is financed. So financing is something that is on top of the ultimate funding source that is paying for the project.

So financing is a tool. It all requires funding. Financing is a tool to leverage funding to get more money today and pay back over time.

It may be financing nuances here but ultimately loans even have to be paid back.

Mr. Montgomery stated: Right, right. What is required to secure a loan can vary depending upon the programs. In the water-infrastructure world it's typically some sort of a financial test that you're a solvent utility that you got a rate structure and you are not underwater – bad pun.

Mr. Spencer added: Coverage ratios.

Mr. Montgomery agreed: Right but there are also revolving-loan, fund programs like the I Bank has their Clean Program that doesn't necessarily – you can, not unlike a home loan instead of showing revenue streams you can substitute some, you can essentially mortgage some capital that you may have as an entity in lieu of demonstrating a revenue stream which could be advantageous.

I know that there is a big that the whole stormwater- revenue issue is hotly debated in Sacramento right now and I don't know where it is at. And there are lawsuits and all this business around that.

You don't have to be a revenue-generating entity to qualify for some programs.

Mr. Spencer asked: So how do you pay back some of those loans if you are just saying you have an asset worth the amount of the loan? You don't have to pay it back ultimately? You still need to come up with the money eventually?

Mr. Montgomery explained: You do need to pay it back. I guess it is just that test.

Mr. Spencer replied: Yes, okay – the credit test. So the credit test for the financing instrument may vary.

Mr. Montgomery agreed: Yes, it might be a little bit more flexible on looking into your – like a utility where you have that financial test on the ratepayer thing.

Mr. Spencer added: The only other point I'd make is on maybe it's under flexibility but we found in the RbD where there is a big need for the project, development funding as opposed to project funding.

And so if you could consider that in how you are classifying these tools it goes along this issue of the agency not having the capacity or this other debtor – they need a grant to say hire the state, grant expert in Sacramento who knows every state grant program so they can figure out where they might slide it.

They need a grant to hire an engineering and design firm to help them figure out just what's the ballpark that we are looking at. So this project without the funding is absolutely critical and it is more difficult to get than the project funding.

Mr. Montgomery shared the following: I had a conversation the other day with the Ocean Protection Council. They've got 15 million that they are going to be putting out and another pot of money and I don't entirely understand their pots of money. But when you talk about this difficulty of building from the local planning to the project implementation on the ground piece you are right that there is crucial gap and ideally you can design – there is more of an appetite to fund projects than there is to fund positions.

So if you go to Sacramento and say we want five people to work in the county level on projects. They are going to think well I am not going to pay for local people. But if you say we've got a bunch of projects and we want build the environmental-clearance, preliminary-design, feasibility-study work into the eligibility costs for a program – that is possible.

But then again you come back to that problem of where is the project list? So maybe you could build in some of those local positions.

Mr. Spencer surmised: It's like a chicken and an egg you are saying.

Mr. Montgomery added: That's the hard part, right? But sometimes if you can sell it as like – hey, we have a project but we need some of these upstream costs to be covered before it can get to the shovel-ready.

Commissioner Holzman stated: It feels like we could find a project list faster than we can find all the money for the projects. So if it is a chicken and an egg we should be able to start.

Executive Director Goldzband commented: Between Mike and me and Sam Schuchat at the Coastal Conservancy/SFBRA we should be able to come up with a project list.

Mr. Montgomery added: And the Air District has a planning group and they push money out periodically. They pushed four million out the door last year to local governments to do some sort of targeted building of climate-mitigation projects in certain spaces that they see as being productive towards getting larger-scale, greenhouse-gas, mitigation efforts underway.

So they've developed a program that actually funds people at the local level on the front-end of their pipeline of what they want to accomplish with their Clean Air Plan. And four million is a lot for the Bay Area like when you compare to the Ocean protection Council 50 million for the entire state.

Hey two-thirds of sea level rise is going to hit the Bay Area the hardest. Can we make a case to get 10 out of the 50 million?

Executive Director Goldzband added: And then you have to play Sacramento politics.

Member Spitler commented: So one of the ideas that I had and this might be under suitability is tracking the impact that the project is having. So for example, donor-advised funds or charitable contributions are oftentimes now being allocated by what the impact that the project is looking to achieve.

So are you bringing clean water? Are you mitigating greenhouse gas emissions? So in terms of connecting projects to donor-advised fund pools of capital tracking the impacts would be one thing to consider under suitability.

Mr. Sander asked: Would this be covered by having them in this matrix where they list out the core benefits? And then they can match that with the impact requirements.

Mr. Spencer replied: Yes.

Mr. Sander stated: We are hoping that once we figure out this process and we are working together with all the required partners we can eventually generalize this into a white paper. We hope to have a place where people can come to get more guidance on how to actually tackle the financing piece.

Executive Director Goldzband chimed in: And then what we would do is we would offer specific workshops for local governments and the like to do that to really help kick it off.

Member Jahns asked: Can we do anything to help identify resources for financial consultants or something to help these projects through? Because that is part of the planning phase.

Executive Director Goldzband replied: I sort of look at that and think okay do I want to be in the business of telling somebody to go to Bob or (Laughter) or Chad or somebody.

Member Jahns stated: They have to hire their own.

Executive Director Goldzband continued: I don't know that I want to do that in the sense of playing favorites. But my bet is that if you put Lauren together with Bob and with Chad and the like they can probably develop a list as volunteers of finance folks who get this – put it that way.

I'd rather have volunteers sort of think about that rather than the state agency but I get your point. Looking for a list of people who know what they are doing.

Member Jahns added: Or just be able to draw the line and say you need to go talk to a professional.

Executive Director Goldzband agreed: Yes, exactly – and know where that line is.

Mr. Sander continued: We have three more questions for discussion. The first was touched on with the criteria discussion but if there are any general concerns with the approach meaning also the first two steps of the breaking down and identifying funding sources I know that this was discussed in this group and the Committee of Four has been going forward with it.

The second one would be what or do you have any ideas of how best to engage with RbD projects given their different stages? I know Michael has been having trouble with how do we actually get them to get the time and respond to these questions we have and get the project broken down to a point that this group can actually offer its expertise? Especially because all of these RbD projects are at different stages of being ready for financing and funding.

And the third question would be then how could we collaborate with your team? And maybe this would be something for this workshop in October. How do we really connect your staff and your ideas with our staff and the Financing the Future Work Group?

Mr. Montgomery responded: It's a good question. I don't really have any staff that is in this financing space. I am happy to help. Is there a relationship with since MTC is involved and ABAG is involved and BCDC is involved – is there a relationship with BARC around this project?

Executive Director Goldzband answered: Yes. And BARC is actually part of the project. So that is how we will go through.

Mr. Montgomery continued: Yes I think we talked about whether or not the Water Board should be at the table with BARC but that might be a way for us to continue to participate in the development.

We have a small amount of discretionary, contract funds. But I would also ask you to take a look at is - take a look at the Air District's Technology Innovation Office. Because what we did at that time was we saw there were so many different tools out there for funding projects and greenhouse-gas mitigation and instead of jumping right into creating a fund we actually spent the first four months inventorying all the available funds and putting together fact sheets and putting them on the website and changing our mission to be –

Executive Director Goldzband interjected: Directing them.

Mr. Montgomery continued: - our role won't just be to provide a mechanism but it will be to actually provide advice on what types of projects can access which types of tools.

So my point is there is collateral knowledge that you might gain from talking to them. It's a slightly different universe this being in one space and the other one being in the stationary source, greenhouse-gas mitigation space.

But there has been some thought and they hired a contractor to help them to think about how do we serve as a clearinghouse? How do we serve as essentially a technical advisor for projects?

Mr. Sander continued: I have one more the next steps slide. What we are planning to do is to continue to work with this group and the Committee of Four to really engage with the RbD lead teams with different, public agencies and whoever is taking on all the RbD projects to get done to help us break down the project into manageable chunks that we can actually give advice on. And then another work session either on criteria and maybe this would be something in October or it could be in between because we are working on ART Bay Area. I'm not a financial expert. We really would need your expertise and feedback on these criteria and the tools and really help match those to the components.

Executive Director Goldzband added: And then the point is if we can get this White Paper done by the end of September or early October that feeds right into an October workshop.

Mr. Montgomery inquired: Can I ask about the Committee of Four? It sounds ominous. (Laughter)

Executive Director Goldzband explained: It is basically just volunteers from Financing the Future is all it is. We need to give them a name and Michael looked at me and said as long as we are not the Gang of Four (Laughter) which of course is very generational.

So we will be back at you in August and we will be working between then and now including all of you.

7. **A presentation by Marsh on its Bay Area Transit Infrastructure Resiliency Project.** I am Brian Cooney with Marsh and a couple of years ago John Coleman at the Bay Planning Coalition asked me to get on the Board and I did.

And I brought a little bit of a different perspective because I have been in the insurance business now since the mid-80s.

I started out in the underwriting side and then went to Marsh in 1989. Our world is about risk. We are a worldwide firm. James my colleague here from Guy Carpenter is in the reinsurance world. That is basically insurance for insurance companies and putting together large risk grants for programs.

Marsh is a worldwide company and we handle a lot of large accounts all over the world. I have been in the public-entity space since I first started with Marsh in 1989.

Mercer is our employee-benefits arm and Oliver Wyman is more of a consulting, actuarial arm.

So we have a whole bunch of colleagues all over the world and we are trying to get away from talking about how big we are and talking more about our clients rather than ourselves.

At the end of the day the Bay Planning Coalition is really trying to look at the economic, environmental health o the Bay resiliency and a lot of the same situations that BCDC is involved with.

We came up with this idea in the last few months that maybe we should start thinking about risk around the Bay Area and planning for it as opposed to being a reactionary situation once something happens.

I mentioned it to John Coleman and then when we had our Spring Summit Meeting I mentioned it to Larry and we said hey why don't you send me something and come over and talk with the Group.

This was meant to be a really, informal discussion. Today is the anniversary of D-Day and it reminds us that a large risk could happen like an earthquake.

What we would like to do is go through this presentation. James is going to talk quite a bit as well. We are not going go through all the pages. This gives you a format to go through this.

Mr. McMillan asked: Before we get into it are there any big questions or interests that you all would like us to try to address?

Brian asked me to get involved because I work for Guy Carpenter and Guy Carpenter is involved in reinsurance. I get involved in hurricanes and earthquakes and most recently a lot of wildfires.

The concern here is how we best plan for the future when there are increases and a lot of these disasters. We will focus a little bit on the impact from a transit/infrastructure perspective was one of the suggestions that was brought to us.

The geography and structure of these transit systems like if there was big earthquake what would happen to BART and how would it recover in above ground and below ground?

There are hazards so you could envision something like the Embarcadero Station could be flooded or it could be impacted in the trans-Bay tube. So how do you best recover that?

There is the concept of risk-financing insurance. Is it best to finance that risk after it happens? Is it best to finance the recovery efforts after it happens? Or is it best to look at financing that risk before it happens so that once it happens the economic-recovery efforts can be accelerated.

So why are governments looking to insurance? One reason is the frequency of these disasters is increasing and many of the governments and public utilities are over-exposed and under-insured.

They are also being faced with a lot of the aging infrastructure. We saw that first-hand with the Oroville Dam recently. There is this concept of financing the risk, Cat Bonds, Catastrophe Bonds.

Hurricane Sandy impacted the Metropolitan Transit Authority in New York there is a spike in the availability for them to buy insurance after the event. It caused them to look to the financial markets and they placed a Cat Bond back in 2003, the MetroCat Re and a Cat Bond that covered them for not only for storm surge but they also included some earthquake coverage in that.

The MTA secured $200 million in a Cat Bond at premium costs that were lower than their insurance quotes at the time for that renewal.

Amtrak has also gotten into the Cat Bond area as well.

A Cat Bond is not an insurance, reinsurance company. Well reinsurance companies can finance or can get involved in the placement of the bond but you can have pension funds, you can have other types of investors that are buying into a plan in the capital markets that are supporting the bond because of the diversification benefits because you are not necessarily going to have a hurricane or earthquake that is going to be correlated with a financial hit on Wall Street. That is why investors like to invest in these Cat Bonds for the diversification benefits.

This was meant to talk about the shifting from a protection-centric strategy to a strategy that emphasizes more resilience. So how do we make sure that our community, our infrastructure, our Bay Area is resilient from a possible catastrophe?

Not all of the economic interests are really insured. So only 33 percent of an economic disaster are alleviated or mitigated through insurance or reinsurance.

We have $2.7 trillion of natural catastrophes between 1970 and 2014 were uninsured. These are shock and awe and they scare us. Hopefully this will create some conversation and maybe we can work towards coming up with some possible solutions to mitigate some of that shock and awe.

If the 1906 Earthquake happened today the damage would be $400 billion with $200 million of uninsured losses. There is a huge gap and growing gap between what is insured and what is uninsured.

Some recent examples of risk-transfer mechanisms are Cal Phoenix Re (PG&E) that bought a Cat Bond and they got a full recovery from that. FloodSmart (FEMA) our federal government has placed a Cat Bond for floods. And we talked about the MetroCat Re (MTA) the Metropolitan Transportation Authority.

Again just sort of focusing on how important and how exposed we are to natural hazards in the Bay Area and scientists are saying that there a greater than 70 percent chance of at least one, major earthquake of a magnitude 6.7 or greater that is going to hit the Bay Area in the next 25 years.

It is not just the earth moving and the ground there is liquefaction. There are going to be land-slides. There is a possibility of a tsunami impacting it.

If another earthquake hits we are all going to be impacted. The idea here is to enter into a conversation of how can we best protect ourselves and recover once an event happens?

This is introducing the concept of pre-disaster financing and minimizing the damage and keeping the weather hazards from becoming a greater disaster.

By gauging the risk transfer some of these utilities in some of the areas in the Bay can speed the recovery efforts.

Here is a graph that shows how do we respond and how do we ensure a quick response from a disaster. The one on the left shows the effect if we don’t really engage in any sort of pre-disaster. In risk financing it shows how we recover and we would have to look at placing some bonds or some placing some other financing mechanisms and that takes time to get the money in the door where if you had pre-disaster or a Cat Bond you could get the relief in the first one to three months and be able to start rebuilding and recover a lot quicker and sooner that you would if you didn’t have some of these alternative, risk-transfer vehicles in place.

So any questions or areas you want to discuss?

Chair Wasserman chimed in: I would like you to explain Cat Bonds to us. From both the investor and the insured’s point-of-view talk about how the Cat Bonds flow.

Mr. McMillan replied: A Cat Bond can be customized in a lot of different ways. Let’s take an example of a $100 million Cat Bond. We want to have a Cat Bond with the recovery potential of $100 million.

It can be placed strictly on an indemnity basis so that if you have a loss greater than $100 million and you get recovery above that for the loss or it could be triggered by on an index or a parametric basis. So that would be like if there is an earthquake of a magnitude of 6.7 or greater that would based on the modelled loss they would have a recovery for that Cat Bond.

Executive Director Goldzband requested: Talk about the mechanics for a second. I'm a local government and I am worried because I have a bunch of liquefaction. And I come to you and I say how do I transfer my risks to the market?

You then say do it a Cat Bond. So I ask you - what is a Cat Bond? And you say – well you agree to; what is the mechanism? How do I get my $100 million? Who pays for the actual bond itself? And how is it like or unlike an insurance product? Does that make sense?

Commissioner Holzman asked: I had circled pre-disaster financing but this still sounds like an insurance product that an event has to happen and you get the money.

Mr. McMillan explained: An event has to happen and there needs to be funds to buy the Cat Bond. So you pay a coupon for a bond. The coupon rate for the – the Mexican government placed an earthquake bond recently and that was 4.5 for $150 million of earthquake coverage.

So 4.5 times $150 million is $6.75 million. It was a three-year bond so somebody in Mexico had to pay $6.75 for $150 million worth of earthquake coverage in the event that an earthquake happened greater than a magnitude of 7 point something within that three year period.

Executive Director Goldzband chimed in: And if I hold the bond, if I buy that bond and I'm taking the risk because what I'll say is I'm going to bet that there is not going to be an earthquake in the next three years and therefore I am going to then be able to cash in the $150 million – no I'm sorry the coupon.

But if it does occur then that $150 million comes from?

Mr. McMillan replied: Insurance or the investors that are backing the bond. And that can be hedge funds. It can be re-insurers. It can be life insurance companies, pension funds and they all get involved in these because they view it as a way to diversify their portfolio and their risks.

Executive Director Goldzband offered a hypothetical: So Zack Wasserman and Jeff Holzman own a hedge fund and they see that $150 million Cat Bond is about to be issued on behalf of the San Francisco Earthquake Authority (there is no such thing) and they say – well, there is a 70 percent chance that within the next 25 years an earthquake is going to happen that is going to affect San Francisco of 6.7.

And the Bond says within the next three years if that happens then we will pay out as bond holders $150 million to the San Francisco Earthquake Authority. If it does not we will sit there and be really, really happy because we will have collected over three years essentially the premium based on that interest rate. So it is a bet that they are taking.

So in other words they are betting on an insurance product. Is that the way to think about it?

Chair Wasserman replied: I think that helps. Part of the problem I have and I don't know if you have faced this in marketing is this is clearly an insurance product not a bond in the way that municipalities normally think about bonds.

But you are not running through a normal insurance company and a normal underwriting process.

Mr. Cooney explained: It is an alternative. There are different ways you can do it. When you day insurance that means you are just transferring that to the insurance company in a traditional way.

A parametric loss is and actually insurance companies like Swiss Re can do this as well. The difference about parametric is it is the trigger that causes this. And you can set that trigger. And that is when they can determine how risky it is going to be and how much they are ultimately going to charge you.

So if you pick one that is going to be significant like let's say it has to be 7.0 – that is going to be a lot less likely than a 5.0, right? And so if you massage where you want to transfer that risk which is going to have a direct correlation on how much you are going to have to pay for it that is one of the areas that an alternative-risk transfer as opposed to traditional insurance can come into play that will make it a little bit more attractive than just going to an insurance company and saying I want to buy $150 million worth of coverage.

Executive Director Goldzband commented: The insurance company is essentially getting a partner that is willing to accept more risk perhaps than the insurance company is willing to take.

Chair Wasserman noted: I mean there could be. But does there have to be?

Mr. Cooney replied: No.

Chair Wasserman continued: It could be a Lloyd's type of investment pool. The difference from my perspective is if I take out a property insurance policy with Traveler's – they take my premium and they pool it with all their other premiums, they go out and make investments to build up their asset pool that is there to be called upon if the insurance, there is still a triggering event, my house burns down – as well as making money on the investment.

Mr. Montgomery noted: But they also buy reinsurance.

Chair Wasserman replied: I understand that. The slight difference is what I call Lloyd's Pool and I understand there are certainly others – you've got people who actually invest in that risk for a return.

Mr. McMillan stated: I'd say a Lloyd's underwriter.

Chair Wasserman continued: Okay, yes – as opposed to a traditional, insurance company. So this appears to me to be taking in part – and I'm pushing you on all of this because if this is going to be meaningful for us we've have to understand it in a way that we can communicate it – and I don't yet.

Mr. Cooney chimed in: I think the traditional side we are saying the insurance side versus more of a situation where parametric or a different way of risk transfer; how do you syndicate that capital?

Chair Wasserman interjected: I very much appreciate that and that is the job on your part but when I am selling this not for the benefit of the company to the San Francisco Earthquake Authority, "bond" doesn't help me very much.

Mr. McMillan commented: You need to consider it as an alternative, risk-transfer and you can buy straight insurance and it can be indemnity-based and so there is a $100 million event and our insurance program attaches it say $10 million so we are retaining - the San Francisco Earthquake Authority is retaining the first $10 million but anything over that $10 million is covered by insurance.

So the Cat Bond is different. So a Cat Bond would be saying – okay, I'm going to buy a Cat Bond in the event that there is a magnitude 7.0 or greater earthquake and in the event of that I will receive $100 million recovery from that Cat Bond.

Chair Wasserman replied: I got it. What I am trying to get through is for you, and obviously for people you have been dealing with, calling this a bond helps you differentiate it from a normal, insurance policy.

If I go to an elected official here, the people on my Board, and I talk about a "bond" they are very familiar with bonds, they do them all the time. And they understand they pay a premium for them. They pay for the bond.

But they get a pot of money to go do their infrastructure. Here they are paying for it but they only get it if the triggering event occurs – that is insurance.

Mr. McMillan stated: It isn't.

Chair Wasserman continued: And I understand it is not structured as normal insurance.

Mr. McMillan stated: It is insurance.

Chair Wasserman emphasized: So all I am telling you is if this makes sense as part of the portfolio that we want to present to people on how we are going to finance we are going to have to find a different word than “bond”.

Second, switch for a moment please from earthquake where easy to pick your number of 5 or 7 to the flooding from rising sea level.

Executive Director Goldzband added: That is exacerbated by a King Tide.

Chair Wasserman continued: So have you started to work with what kind of triggering events for that kind of catastrophe might work in this parametric context?

Mr. McMillan answered: The short answer is I can’t come up with one at the moment. But there are a lot smarter people than myself that are creating these types of instruments. I can get back to you on that.

Chair Wasserman stated: I think that would be very helpful because that is the risk.

Mr. McMillan continued: But there needs to be a triggering event.

Chair Wasserman repeated: Right and I get that. And it is probably not that hard.

Mr. Cooney chimed in: I don’t think so because at the end of the day in order to trigger a property policy you have to have physical loss or damage to a covered peril. And you said a covered peril was flood and if you had a lot of runoff coupled with seawater rise, coupled with a King Tide and it caused physical damage to a facility or a building or some real property then you would have a trigger.

Chair Wasserman noted: But that is not what your parametric does. Your parametric is not dependent on –

Mr. McMillan interjected: There is a lot of modeling done on flood risks. So it would have to be like a 100-year flood according to the models or greater that would then trigger the event.

Chair Wasserman agreed: Right, so it is going to be – I mean we talk about total water volume which is made up of high tide, King Tide, surge and rising sea level. So in the simplest way is the parametric trigger could be 12 feet of total water.

Mr. Cooney stated: As a combination of all those different factors and all those would be the triggers. And that is how they underwrite it and price it.

Chair Wasserman agreed: Right and they look at scientific evidence and decide the risk. Okay. Thank you.

Member Jahns chimed in: Another question is – is there or are you seeing derivative markets respond to climate change. So if you are buying a catastrophe bond it is not going to snow during the Winter Olympics, you can buy derivatives to offset that. Is that happening for climate change or precipitation and the like?

Mr. McMillan answered: Yes. It is an emerging field but there are insurance-related entities that are looking at those specific types of weather hedges. And there are companies that are buying it and public entities too.

Mr. Cooney added: It's been around for a while. One of my clients, one of the utilities in the area, way back in the day when Swiss Re said, okay we want to buy weather programs because they have the hydro facilities and if you don't have the hydro water you have to go out and buy the water and buy the power and that can get pretty expensive if they occur.

So they put a program together and said, okay it's got to be this many hot days as one trigger. It's got to be a certain temperature for a certain period of time and there has to be an unforced outage that happens at the same time too.

So coupled with that they were able to put together a weather program. So they have been around for a while. It is just a different way to get away from the traditional buy insurance from an insurance company because at the end of the day usually an insurance company is going to say – we don't care how big the earthquake is there just has to be physical damage.

And typically they take the first five percent and if they can bump that then that is what you are indemnified for.

Member Spitler commented: Zach there is another way to think of a Cat Bond is they fall into the bucket of insurance-linked securities. So a Cat Bond is an insurance link.

Chair Wasserman interjected: I am sure that there are very good labels that you will come up with. (Laughter) All I am suggesting to you is if you were making this presentation to the Commission you would have a huge hurdle by using that term. And I think you can just avoid it.

Mr. McMillan stated: That is very helpful.

Mr. Spencer commented: Zach the way I explain is it is just an insurance policy. It is simple.

Chair Wasserman stated: They don't like to hear that. (Laughter) But you and I are on the same page.

Mr. Spencer continued: To an elected official – it is just another type of insurance policy. And what it does is it gets money sooner.

Chair Wasserman agreed: Yes and it makes absolute sense.

Mr. Spencer emphasized: It gets us money sooner because it is done by a trigger and not by some actuarial calculation of losses over time. End of story.

Executive Director Goldzband added: And the way I think about it with regard to water is that it is different than the National Flood Insurance Program in a big way.

Mr. Cooney replied: Well the National Flood Insurance Program is limited to say the very least. It will only provide you $500,000 worth of coverage per building and %500,000 for contents and unless it has four walls and a roof and a slab it doesn't qualify.

Executive Director Goldzband continued: and it is expensive as all get out and there is no variability in it whatsoever. You can't agree to put your own schema around what you actually want to insure and how you want to insure it.

Mr. Cooney stated: It is actually fairly inexpensive and that is why the whole thing, no pun intended, is completely underwater. I don't know how it has continued.

Mr. McMillan chimed in: But if there is an interest in learning more about how one would possibly structure an insurance-linked security related to sea level rise and water and the impact in the Bay Area we can certainly –

Executive Director Goldzband interjected: There is.

Chair Wasserman echoed: There is.

Mr. McMillan continued: - go back our colleagues and socialize that and look at this from the model of how it is structured and come back to you with a more succinct presentation.

Executive Director Goldzband stated: It would be fascinating.

Chair Wasserman interjected: I think that would be very helpful and hopefully beneficial for you. One of the other advantages of that approach is with normal insurance you've got the $100 million needs to be used to repair those specific things. Here you get, and let's say it is S.F. Bay Restoration Authority now so we are dealing with water rather than earthquake – they get the $100 million to spend as they deem appropriate, not determined.

Commissioner Holzman stated: That is the big deal.

Chair Wasserman concluded: It is a very significant benefit. Now the other thing that we need to be conscious of is – so let's say we are dealing with $125 million bond at a 4.6 million dollar, premium rate one of the choices for the S.F. Bay Restoration Authority is going to be how much money do we spend for that insurance piece versus how much do we spend to bond for money that will give us the ability to build things that will mitigate the damage.

It is not a totally either/or. We can do both but there are limited resources.

Mr. McMillan noted: Yes and I understand. Seattle has recently completed a restructure of their seawall to address sea level rise.

Chair Wasserman acknowledged and stated: Right, exactly. And San Francisco is engaging now and we are looking at a wide array of types of things going way beyond seawalls.

Executive Director Goldzband stated: So this is cool.

Mr. Cooney chimed in: So we are going to wrap it up. This was just to kick this off. We wanted to stimulate dialogue. We thought so what are the next steps?

I called John yesterday and told him I was giving this presentation and informed him of what I was going to present. I did talk to Jeff and he was receptive that this is something that we should talk about.

It probably makes a lot more sense to talk about it now than try to have a conversation after-the-fact.

Chair Wasserman noted: We'd get more attention after-the-fact but we need to have the discussion now. (Laughter)

Mr. Cooney stated: Well at the end of the day if you at least develop a plan and even if that plan says we are not going to do something now or we are on a limited basis at least we are talking about it.

And identifying who should be at the table up and beyond what I thought was an initial steering committee with the three entities it will certainly have a stake of what happens on the Bay.

And then just kind of dive into it and look at what are the risks. And then we've got some really sharp people that all they do is model risks. So they can take the infrastructure, run it through their models, look at damageability numbers and see how big is this basket? Do we need a billion? Do we need four billion? We don't really know until you get the modeling back.

And then we work with people on Guy Carpenter and Jamie to try to figure out how would you structure this? Would you develop a certain layer where you could retain a big chunk of it? Or should we just look at transferring it from a pretty high level?

And then the question is similar to the issues that you talked about earlier. How are you going to fund this thing? Who is going to pay for it?

And so that is a hurdle that is relatively high. And then the other side of the question is – what do you do with the proceeds? And what if you have a loss that is 7.5 and creates all this damage and you wipe out 150 or 100 million or whatever the number is and then within – let's say you don't even wipe it out, let's just say you have another quake six months later and the people that need the money that didn't need it for the first quake but there is not enough left – how do you allocate that?

So there are some issues about making things equitable that you have to address as well.

And then the other idea is that who do you socialize this with? And that is a big deal.

And then I kind of left it with the idea of where do we go from here? Do we have another discussion in two months or three months or do you want to think about it for a while? Where do we go from here?

And then the other side of the story is that we made up some fictional entities but you have to have an entity of some kind whether it is joint powers or someone that you would actually be able to trigger and pay. And how would they disperse those funds?

Chair Wasserman stated: I think this is terrific.

Mr. McMillan had a question: Has the discussion happened around what the relationship is between the pay out of one of these mechanisms and the Stafford Act? If you are a local entity and your catastrophe is significant enough to allow you to make yourself available of federal recovery funds – is this part of that equation? Or is this not a part of that equation? Has anybody looked at that?

Mr. Cooney replied: I don't have an answer for you relative to the Stafford Act. But if you look at all of this uninsured infrastructure that we have if something happens –

Executive Director Goldzband added: Or self-insured.

Mr. Cooney continued: - or self-insured, okay; then the question is okay how are we going to build it back? What are the feds going to do?

Especially in this climate that could be a fairly short and difficult conversation. But at the end of the day we are not going to allow the Bay Bridge to not be fixed. It is just not going to happen. They are not going to not fix BART. There is going to be a bond. There is going to be something that is going to happen after-the-fact to get things back up and running because the public is going to demand it.

So it is a question of if we can see that risk out in front of us what do we want to do about it today in how we address it?

Mr. McMillan noted: There are certain events that are covered under the Stafford Act and certain ones that are excluded. So for example when we had the severe drought we were trying to make the case for federally covered tribes that we should have access to the Stafford Act for preventing the tribal, drinking-water systems from running out of water.

Executive Director Goldzband explained: The Stafford Act is the federal law which governs post-disaster funding.

Mr. McMillan continued: So they were sort of saying well droughts aren't covered under the Stafford Act. It is fires, earthquakes and I don't know the category of everything that is covered but I guess does it make a difference in terms of how this is structured as to whether or not something is covered or not covered.

Executive Director Goldzband noted: It is the collateral issue. It is the same collateral issue.

Chair Wasserman added: It absolutely needs to be figured into the calculations.

Mr. McMillan opined: But it could also be that if you had recoveries from the Stafford Act post-event it might be that the cap on or the insurance and security was able to get you the funds sooner than you would be able to get it from the Stafford Act but then you could make your bond holders full after being reimbursed by the Stafford Act.

It comes to time value of money. How quickly can you get the funds and start rebuilding? And what is the least path of resistance to get back to whole?

Chair Wasserman stated: So clearly that has to be figured in.

Member Paparian chimed in: So two quick, inter-related questions; you have structuring with a joint-powers authority. Is there any reason why you couldn't just do this with an MOU between several entities?

Mr. Cooney replied: You could – you could do an MOU. At the end of the day you got to have the right legal entity to be able to accept the check. (Laughter)

Member Paparian continued: And then related to that could you have a private entity? Let's say one of the Recology, there's Richmond Sanitary or somebody to give a private entity mixed with government and no reason you couldn't do that, right?

Mr. Cooney responded: Yes, I mean at the end of the day a joint-powers authority just gives you the mechanism to pool your risk and to be able to transact within yourself and with other parties.

They didn't really come around in the insurance business until the mid-80s when we couldn't get insurance for public entities. Time Magazine had an article that said America Your Insurance is Cancelled and that is when all the joint-powers activity happened in California in the '86, '87 era and they ended up going out to the ranchers and doing an unwrap and understanding and that type of thing.

Chair Wasserman chimed in: I think this is very good. I think we should do it. I think it needs to be made clear that this is for infrastructure. There are other ways to approach it but I think that is going to be one of the important filters.

From my perspective but not necessarily yours I want to focus this on problems from flood and rising sea level. Now there is clearly a need for this potentially for fires. We have talked a lot about earthquakes.

But that is not us and what I am not interested in doing and I think our Commission would not be interested in doing is combining them.

So I think if this works for the other areas more power to you but do it separately.

In terms of initial steering committee a couple of forces that are not represented there and should be MTC/ABAG, Caltrans and there is a set there.

And I think the two pieces that we ought to or maybe three focus on as a next step to move this forward is – who does belong at that level? And then dropping all the way down – what the timeline is particularly for the initial steps and some discussion of the key stakeholders which is different than the steering committee.

Commissioner Holzman commented: it sort of strikes me as a just-too-bad category that there is all this money out there for after the bad thing happens and now we are seeing something that feels like almost a derivative product or something that is triggered and structured and its price is based on how much risk there is and it is too bad there isn't a way when we are looking at the pricing of that there is a way to factor in what happens when we take some of the proceeds to do something pre-events to reduce the risk of the really, bad, post-event thing happening.

There is all this money with giant zeros and giant commas out there when we talk about these large products but it is always to just fix it after something bad happens. It would be great if there was a way to price in a way that you could spend a fraction of that money beforehand so that the risk isn't so great.

Mr. McMillan stated: There is a concept called the Resiliency Bond that addresses that.

Mr. Montgomery chimed in: And notionally when they look at the risks they will look at what are you doing to mitigate those risks on what your program is for capital improvements that will address the underlying risks. And that might be a factor that would be considered.

Executive Director Goldzband asked: Does that make sense to you Chad? I mean it sounds like a green-bond kind of approach that what you guys do is make sure that it is actually green.

Member Spitler replied: I think the resiliency bond resonated with me in the sense that back to the point about positive impact that is going to get the market's interest in terms of investors wanting to do good things with their money.

Mr. Cooney reiterated: Like I said this is just a kickoff in your planning.

Chair Wasserman stated: And I appreciate it very much. These are great thoughts. And that is our homework and yours is to think about the triggers that would work on the parametric model for floods.

Executive Director Goldzband: I think that introducing these folks to Adapting to Rising Tides and how we think about total water level would be the way to start.

8. **Discussion of possible topics for future BCDC/public workshops.** Chair Wasserman announced: We did have on future topics. I'll take two minutes if anybody has one that is burning for them otherwise we will grind out some and send them out to you.

Executive Director Goldzband stated: What we thought is that we are going to have Mike and Yours Truly and the Adapting to Rising Tides Team talk through how we can set up the October workshop based on the discussion we had that Mike and Nick both did which includes it being co-hosted by the Water Board if Mike's folks want that to happen.

And so I am thinking the August meeting will be defining that as well as we possibly can and also probably coming back to this to some extent and I think the Advisory Group.

10. **Adjournment.** Chair Wasserman adjourned the meeting at 12:21 p.m.