San Francisco Bay Conservation and Development Commission
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May 12, 2017

TO: All Commissioners and Alternates

FROM: Lawrence J. Goldzband, Executive Director (415/352-3653; larry.goldzband@bcdc.ca.gov)
Sharon Louie, Director, Administrative & Technology Services (415/352-3638; sharon.louie@bcdc.ca.gov)

SUBJECT: Draft Minutes of May 4, 2017 Commission Meeting

1. **Call to Order.** The meeting was called to order by Chair Wasserman at the Bay Area Metro Center, 375 Beale Street, Board Room, First Floor, San Francisco, California at 1:13 p.m.

2. **Roll Call**. Present were: Chair Wasserman, Vice Chair Halsted (represented by Alternate Chappell), Commissioners Addiego, DeLaRosa (Departed at 3:17 p.m.), Gibbs, Gioia, Gorin (Arrived at 1:22 p.m.), Kim (represented by Alternate Peskin – Departed at 3:10 p.m.), McGrath, Nelson, Pine (Arrived at 2:20 p.m.), Ranchod (Arrived at 2:16 p.m.), Randolph (Arrived at 1:47 p.m.), Sears, Showalter, Techel (Departed at 3:02 p.m.) and Wagenknecht(Departed at 3:02 p.m.).

Not present were Commissioners: Association of Bay Area Governments (Butt), Alameda County (Chan), Santa Clara County (Cortese), Department of Finance (Finn), Governor (Zwissler), U.S. Army Corps of Engineers (Hicks), State Lands Commission (Lucchesi), Department of Business Transportation & Housing (Sartipi), Solano County (Spering).

3. **Public Comment Period**. Chair Wasserman called for public comment on subjects that were not on the agenda.

Mr. John Coleman with the Bay Planning Coalition addressed the Commission: I wanted to remind you that next Thursday is our Spring Summit in which we have a phenomenal program lined up and I am going to pass out the agenda so you can see what the topics are and who the speakers will be. The media will be present and they are going to push our people to answer questions. John Gioia will speak at lunch and he wears a number of hats. He makes policy and he is a regulator here on the Commission and is on CARB and BACMA and also distributes funds for Measure AA.

Chair Wasserman moved to Approval of the Minutes.

4. **Approval of Minutes of the April 20, 2017 Meeting.** Chair Wasserman asked for a motion and a second to adopt the minutes of April 20, 2017.

MOTION: Commissioner Wagenknecht moved approval of the Minutes, seconded by Commissioner McGrath.

VOTE: The motion carried with a vote of 14-0-0 with Commissioners Addiego, Chappell, DeLaRosa, Gibbs, Gioia, Gorin, Peskin, McGrath, Nelson, Pine, Sears, Techel, Wagenknecht and Chair Wasserman voting, "YES", no "NO", votes and no abstentions.

5. **Report of the Chair.** Chair Wasserman reported on the following:

a. **New Business.** Does anyone wish to request an item of new business that we take up at a future meeting? (No comments were voiced)

b. **New Commissioner.** I am pleased to report that Sanjay Ranchod, who has been Commissioner Nelson's alternate, has been appointed by Governor Brown as a Commissioner to fill the chair that has remained empty since Colleen Jordan Hallinan left the Commission. We are very happy to have Sanjay as a full-time Commissioner and joining Pat as representing the peninsula which has been under-represented for a period of time.

Commissioner Gioia commented: I have to say, having served with Pat on the Restoration Authority board, they will not be going under-represented when we have them onboard (laughter).

Chair Wasserman continued: Sanjay will continue to serve on the Enforcement Committee where he has been a very important resource.

c. **Next BCDC Meeting.** At our May 18th meeting, in the Yerba Buena room across the way, we will hold our 8th rising sea level workshop and I encourage all of you to come to that.

Probably most of what I would really like to say in my general remarks is going to be covered in the report from OPC which will be a little bit delayed. We had a preview of it at the focusing on the Future Finance Working Group this morning. It simply reinforces what we know that the tipping point has been reached; that if we stopped greenhouse gas emissions tomorrow we would still have to deal with a very serious rising sea level. The new studies focus on the melting and the breaking off of the ice sheets that is going to make that water rise. It was stated that 61 percent of all of the freshwater on Earth is contained in the Arctic Ice Sheet Shelf. We also had a very good presentation from Kristina Hill from U.C. Berkeley and the Climate Readiness Institute on a number of her observations on what other countries are doing and some comments on things that have been done here and are being considered here. One of the points that she made is that with hardscape protections; they do not last forever. We need to think very carefully as we think about where they may be necessary because there are some areas we are going to have to armor with hardscape. We need to think about how to deal with this so that we do not create an even worse problem for future generations.

d. **Ex-Parte Communications.** If anybody wishes to make an ex-parte communication on the record you may. You do need to file those in writing so this is purely voluntary. There are no matters on this agenda that would require that. (No comments were voiced).

e. **Executive Director's Report.** Larry Goldzband will now present the Executive Director's report.

6. **Report of the Executive Director.** Executive Director Goldzband reported: So, what happened to spring? I am going to suggest that BCDC's workshops to examine our own laws and policies in a transparent public forum so stirred the universe that summer came early. Or maybe it's the news that BCDC will end the year with a surplus and with a positive cash flow despite our lack of a chief budget officer that has caused the sun to smile so brightly. Or, perhaps it was last month's grand re-opening of Tesoro's marine terminal in Martinez that you permitted 18 months ago. I'm trying not to boast about our good news, but as Yogi Berra once said, it's not the heat, it's the humility.

a. **Budget and Staff.** With regard to budget, I'll start off by letting you know that we have closed the first nine months of the year and our analysis with the Department of General Services shows us in the black and moving in a positive direction. I am proud of our accounting, contracting, and HR team – they've taken a great lead.

And, just as we are getting the hang of it, we are thrilled to let you know that we have hired, with your approval, a new chief budget officer. Her name is Chenee Williams and she earned a B.A. in Accounting from Dillard University, at which she was a point guard on the Blue Devils basketball team (that is "Blue" spelled b-l-e-u). After working for an international accounting firm for two years, she left to earn her Master's Degree in International Sport Management from Purdue University and became the Associate Athletic Director at Mississippi Valley State University where she maintained compliance under NCAA, SWAC, and school policies. She is now an auditor with the State of California and we look forward to her starting in a couple weeks unless I hear an objection. (No comments were voiced)

And, just as Chenee is about to join us, Alex Smith has left us. You will remember Alex as the perpetually cheerful staffer who made sure that our meetings went smoothly from an administrative standpoint, was a great receptionist, and all-around utility staffer. Alex received a great promotion from the Department of Industrial Relations and we are sorry that he has left us.

b. **Policy.** I was late to our workshop last Thursday because I was asked to provide testimony to the Senate Budget Committee, chaired by former Commissioner Bob Wieckowski, on BCDC's leadership in the challenge to increase Bay Area resiliency in light of rising sea level. I testified with Jack Ainsworth, the new Executive Director of the California Coastal Commission, and the Senators and staff told us that we provided clear and on-point information that they will use to assist us as necessary. Senator Wieckowski, you will remember, is a big supporter of our Adapting to Rising Tides Program and the Subcommittee also was very interested in hearing about our work with Caltrans and MTC and our Financing the Future Commissioner Working Group.

On Monday of next week I'll be at a meeting with various staff of the Natural Resources Agency to brief them on our preliminary list of budget change proposals that will reflect the tasks outlined in our draft revised Strategic Plan that you will discuss today.

Finally, I want to point out that in your packet today is an invitation to a very important workshop that the state will be holding at the Hiram Johnson state building on Monday, May 22nd. You'll hear today from the Natural Resources Agency, the Ocean Protection Council and the Ocean Science Trust on the new rising sea level projections. On that Monday the three organizations will hold workshops on their plans to update "Safeguarding California," the guide to the state's climate adaptation strategy in the morning and on the guidance document describing how to incorporate rising sea level projections into planning, permitting and other decisions. For the local elected officials, I urge you to send a representative to this important day-long event.

That concludes my report, Chair Wasserman, and I'm happy to answer any questions. (No questions were voiced)

7. **Consideration of Administrative Matters.** Chair Wasserman stated there were no listings on administrative matters.

8. **Briefing on Plan Bay Area.** Chair Wasserman announced: Matt Maloney of the Metropolitan Transportation Commission will give us an update on the status of Plan Bay Area.

Mr. Maloney addressed the Commission: Earlier this month MTC and ABAG formally released the Draft Plan Bay Area 2040 and over the next month we are going to be seeking feedback on the Plan; the action plan component of the Plan as well as the environmental impact report from policymakers and the public.

What I wanted to do today was give you a brief, five-minute overview of the process and talk about the action plan. This is the second iteration of Plan Bay Area, which is a combined regional transportation plan and sustainable community strategy. We have been doing regional transportation plans in this region for some time.

When we prepare regional transportation plans or RTPs the goal is a long-range, fiscally-constrained plan for transportation investments, and that is a federal responsibility that we have in terms of RTPs.

When SB375 came about we were tasked also to combine that effort with a sustainable community strategy, which caused us to create a forecast of development pattern for housing and jobs, and develop a strategy for housing, the expected growth in the region's population, and also for achieving per capita GHG targets in a long-range way.

This Plan has a heavy focus on the acute housing crisis that is facing this region. In 2011 to 2015 the region added over half a million jobs and built only 65,000 housing units. Regionally we have one housing unit built for every eight jobs created.

People are increasingly living further away from where they work, and that is translating into new pressures on our transportation system.

Transit is at record levels in terms of dealing with its capacity. BART carries two-thirds of the riders in the peak hours and is completely maxed out. We see heavy increases on the highway system in terms of the congested delay per worker.

We are planning for 820,000 new households in this region between 2010 and 2040. The Plan is a focused development pattern, and that continues the trend from the last iteration of Plan Bay Area which was released in 2013.

We are seeing nearly half of the growth in households in the big three cities of the region. We have about a third of the growth occurring in the bayside communities, which are the areas in blue on the map. We have growth of roughly 21 percent in the inland, coastal and delta areas of the region.

The Plan does call for roughly three-quarters of the household growth to be located in priority development areas, which are the locally nominated areas for housing and job growth around the region. The Plan tries to focus its forecast growth in those areas.

We are planning for 1.3 million new jobs; 43 percent in the big three cities, 40 percent bayside, and 17 percent inland, coastal, delta – a majority of the job growth is forecast to be in priority development areas.

The Plan is a fix-it-first strategy for our transportation system. We have a big, mature system that needs operations, maintenance and modernization. Nearly 90 percent of our 300 billion dollars expected transportation revenues between 2015 and 2040 would go to operating, maintaining and modernizing the system. 10 percent of those revenues would go to expanding the system. What we mean by expanding is extend, fixed-guideway transit systems as well as adding some limited capacity to our highway network.

We set aspirational goals and targets for our Plan. At the beginning, we will work through our Commission in terms of setting those goals. The Plan meets our statutory guidance and targets regarding climate protection and adequate housing. The Plan also does a good job of achieving its target for protecting open space and agricultural lands.

We generally move in the right direction in terms of some of our transportation metrics. Where the Plan really has issues is in terms of affordability.

While we can accommodate the region's growing population, and house that population, it doesn't necessarily mean it's going to be affordable. While the Plan is better than no plan at all, we are still seeing issues in the wrong direction. That has motivated our Commission to ask us to look at preparing an action plan, which begs the question; what would it take to move some of these metrics in the right direction?

The Plan has five chapters. The fifth chapter is this action plan. We put the Draft Plan and EIR out at the end of March or early April, and we are going to be accepting comments on all of these documents through June 1st.

We focused on three prongs in the action plan. This was motivated by places where the Plan was moving in the wrong direction. Central to this is the affordability challenge. How do we deal with the housing affordability crisis? How do we raise wages by moving folks into middle wage jobs?

We are also trying to deal with issues, and trying to be proactive with issues coming before this region. That means a heavy focus on resilience in the action plan.

Some key issues are funding, providing more coherent local assistance to our communities, and so on. We have some of those recommendations in the action plan.

Our outreach schedule is fairly robust. We are in the middle of it right now. We have nine briefings of elected officials – one in each county. We are starting our open houses around the region tonight. We also work with community-based organizations and do public hearings on the Plan and EIR.

The feedback is due June 1st. We will be finalizing the Plan and the EIR and prepping for adoption this summer. We are looking for adoption in late July.

Commissioner Nelson commented: Our next agenda item is discussing projections for sea level rise. Bay Area shoreline communities are where your work on transportation, housing, and jobs intersects with our work regarding the Bay. Have you done any analysis, or would it be possible to do some analysis, that looks at the implications of this Plan and shoreline communities? There are an enormous number of communities that are still highly developed that we know we are going to need to protect those in the future. There are other properties around the Bay where that may or may not be true.

I'm wondering if there has been analysis done, or if it is possible to look at the implications of this Plan around the Bay shoreline, not just in our jurisdiction, but in low-lying communities near our jurisdiction?

Mr. Maloney responded: In our EIR we do some of that analysis looking at the Plan, and also alternatives to the Plan. The EIR is a very lengthy document and we do include some of BCDC's work in Adapting to Rising Tides in that document. There are overlays created between our forecast of development patterns and where we foresee those challenges.

There are some stark challenges with this work. This region has focused much of its development in some of these areas predominately because a lot of these areas have very good transit access. In terms of doing this long-range planning, it's what we have been focusing on in order to achieve GHG targets.

At the same time, a lot of these places have huge challenges with sea level rise. That is one big planning and public policy issue that we are facing in a big way in this region. Some analysis has been done by BCDC from the BARC group and from ABAG on how to deal with these communities. It may be providing local assistance so we can come up with new, novel ways to mitigate those challenges. We must go back and reconsider the priority development areas as a framework and what that means for our planning process.

You are going to see an evolution as you move to the new plan, where we take a really careful look at the market potential and feasibility of these types of areas from a resiliency lens of how they perform. As a region, we need to build that into our planning comprehensively.

Commissioner Gorin commented: I am from Sonoma County, one of those counties that is transportation-challenged. (Laughter) Working on Highway 37 today, the four counties are coming together, and financing is going to be interesting. Tolling is in our future I suspect.

Many of my constituents have given up on the commute and they are moving back to San Francisco, or closer to where their jobs are. That is probably good for the transportation patterns. Are you looking at not only the central employment hubs of the big three, but the potential employee commute patterns that have developed around the North Bay where the housing is going? Where it's slightly more affordable in Solano County. Have you looked at the impact on Highway 37 and other state highways trying to get from place to place?

Have you looked at how that factors into the planning of the Draft Bay Area, and have you thought about more transportation/transit options from and around the North Bay, and trying to figure out how we can avoid adding more congestion on our freeways?

Mr. Maloney answered: All those projects that you mentioned in the North Bay are priorities for MTC too. The Plan does include a marker for SR 37 in terms of getting the environmental process underway. It is going to be a big, expensive project that is going to put everything together; maintaining what is there, potentially adding capacity, and dealing with the sea level rise issue that is facing that corridor.

SR 37 work is beginning and we have to think about what that might mean for a third regional measure for a corridor. Marin/Sonoma narrows is another huge challenge. The Plan does include that as a fiscally-constrained priority, as well as the Smart Train, which is coming online.

The Plan also makes some pretty significant investments in local bus service. In Sonoma County, they put forward a major increase boost in their bus service. That came out very well, and that investment is fully funded in the Plan.

Commissioner Gorin added: Thank you for your work on this. I'll make sure that I attend the Sonoma County meeting. We are not only looking for transit options, but also need east/west connections to Solano, Napa, Sonoma and Marin.

Commissioner Gibbs commented: You hammered home on the affordability issue. I want to make sure I understand how you are using the term because you said: "We are going to have several hundred thousand new households but it's not going to be affordable." In the simplest understanding of the term, if it's really not affordable, they can't afford it, so they can't be there. Do you really mean that the housing will take too high a percentage of their disposable income? Or is there some other way that you are using the term?

Mr. Maloney responded: That is what we mean. What the Plan needs to do is develop a strategy for accommodating the growth in the region's population. That number is about 820,000 new households between 2010 and 2040. Accommodating the growth in the region's population is not necessarily the same as accommodating it affordably. One thing that we see in our Plan is that in terms of looking at housing plus transportation costs, especially for the low-income spectrum of the population, that cost going to rise by 13 percentage points between 2010 and 2040. That is not good news.

Of those 13 percentage points, 12 of the 13 has to do with housing costs. Transportation is getting a little more expensive; housing is forecast to get even more expensive and take up more of the purchasing power of low-income folks.

That is the problem that is facing us. We are being very clear about that massive public policy issue. We are not the only agency, but from a regional standpoint we are trying to drive that point home.

Commissioner Nelson chimed in: Are those 800,000 new households gross or net? Does that include displacement when you talk about affordability? Are you projecting displacement caused by affordability challenges?

Mr. Maloney explained: What we look at is the risk of displacement. We look at forecasting whether low-income folks are going to be leaving census tracts.

We do see that the Plan, compared to doing nothing at all, performs better relative to what would happen without the Plan. We are still moving in the wrong direction in terms of the risks of displacement.

We are forecasting that this problem is going to continue. We are seeing folks flee the region and moving out to the Central Valley in search of affordability. At a neighborhood level many of you are familiar with the challenges in some parts of this region in terms of people being priced out.

Chair Wasserman commented: Does the Plan talk about the range of what affordability means? There is a lot of public discussion about affordability for low-income. There tends to be a little less discussion about affordability for workforce housing for people who are employed, but cannot afford housing, rental or purchase.

Does the Plan address those issues as well?

Mr. Maloney replied: It does. And again, the central driving point behind the Plan is to house the population at all income levels. What we have seen in terms of what cities have actually done, permitted and produced on the ground, is that we have produced enough housing for higher incomes, but in terms of low and moderate incomes, including the workforce housing, we are seeing our local communities struggling to reach those goals.

That is pointed out front and center in the Plan. I agree with you on the affordability issue, but it is also middle-wage housing as well.

Chair Wasserman continued: Is one of those 16 supplement reports on sustainability?

Mr. Maloney answered: The supplemental reports are not necessarily policy reports. They are more methodology oriented reports focused on how we do our forecasting; the methodology of how we do our jobs in housing, and how we develop our financial projections. They are more focused on technical methodology.

We don't have a sustainability report as one of those 16 reports. Moving forward, as we evolve in our long-range planning, there is going to be an evolution and a call for our planning to become more and more comprehensive. We currently are dealing primarily with housing and transportation, but we have to move forward and build sustainability and resiliency as central pieces to our long-range planning.

Chair Wasserman added: My recollection is there was a fair amount of discussion after the first plan, before the work for this plan really got underway, about making sustainability generally, and sea level rise in particular a part of the report. My impression is that while it is discussed probably more than in the first plan; it isn't discussed a lot.

Mr. Maloney replied: It is one of the three pillars of the action plan. It is not only housing and economic development, but the third prong of the Plan is resiliency. We are trying to be aggressive with that as a public policy area.

Some folks from the BARC group, ABAG, and BCDC have been collaborating around a resiliency document that would speak to the Plan in terms of what the Plan currently does around the issues of resiliency; especially with hazards and sea level rise, but also looking at earthquakes, drought, and all those kinds of things. We also try to point the way forward in terms of how our future plans deal with these issues in a more central way.

This coordination is going on. We have our work cut out for us in how we make our planning more comprehensive, and how we deal with those issues more centrally.

Commissioner Showalter commented: This affordability issue is not a new problem. I remember in the 90s hearing that Santa Clara County had built one housing unit for every nine new jobs produced. I think it is probably a lot worse now.

We have had this problem of under-building for at least 40 years. In a nutshell, can you tell us any new policy ideas that have come out of this that you see will help us, or is it just doing more of the same good things that are in the affordable housing toolbox that we have been working with for 40 years?

Mr. Maloney replied: I think a little bit of both. We do need some new ideas. The Plan is populated with some strategies that we use to motivate more affordable and moderate housing. We worked with those priority areas. What the Plan can't do is be a patchwork of local general plans. What is interesting about this process is that if you just stuck all those general plans together, we would be nowhere near the housing number that we need to achieve to accommodate the region's population. That is problem number one.

The way that the Regional Plan has to deal with that is try to motivate more of that behavior. We do that a little bit through working to up zone some priority development areas to try to motivate more housing growth in a planning sense in some of those local communities and deal with some in terms of our policy toolbox, whether it's inclusionary zoning or other strategies to try to work on affordability.

It is clear that in this region we need new funding sources. We need to figure out how to get housing produced. There is a myriad of ways for housing not to get built in this region. It is a problem of planning in some communities, just getting permits to happen. In other communities permitting is fine but we just can't get stuff built on the ground. It is almost every problem from A to Z under the sun.

There are a myriad of issues that we have to look at. One thing that we are starting in May is a new committee to look at this policy problem, especially in terms of what the region can do about it; what these agencies can do to try to solve the problem. We are forming a committee called, "CASA", the Committee for Sustainable Accommodations. It is sort of a blue ribbon panel that we are putting together to really look at what this region can do to solve the housing crisis; whether it is funding and trying to be more persuasive with our policy tool kit with local communities.

We think it is job number one to look at this issue this year.

Chair Wasserman added: I think Pat makes a very important point that keeps getting lost. We don't have a housing crisis. We have a structural housing problem that has existed for a long time and is getting much worse.

The problem with calling it a crisis is it may make us feel good, may respond particularly to those least able to represent themselves, but the problem of thinking about it as a crisis is you think about a quick solution. You think about an immediate solution. There are no immediate solutions.

I would urge the document and the planners to stop talking about, "crisis". It is a structural problem that we really need to focus on.

Commissioner Gibbs asked for more information: Chair Wasserman, can you outline your analysis of the structural problem?

Chair Wasserman explained: I think Pat pointed it out. If you look at the growth throughout the Bay Area, but particularly in the high-growth areas; go back almost as long as you like, and we have been producing less housing than jobs by a very significant multiplying factor – and that continues. One of the great difficulties is, if you look at total housing projection in new housing, particularly in those places where there has been growth such as San Francisco, it's the high-end housing. It is not the workforce housing. It is not the affordable housing.

This has been going on for a very long time. The other problem is when we think about it as crisis, you think about new housing causing displacement. And obviously in some places it does. If you tear down existing housing to build new housing, you are displacing. Displacement in the public discussion today is taken to mean much more than that, because if you put housing that is market rate, particularly higher-end market rate on vacant land; people still think of displacement because of trickle down and changing neighborhoods.

You put the crisis context on it and it becomes: we've got to be quick, we've got to be immediate. You have to stop this – we really need the structural component. This is obviously precisely the kind of planning to deal with it that way.

Mr. Maloney stated: As we talk about structural issues, the other piece of the Plan that is front and center is the tax policy element and the fiscal health of cities including the fact that in many places, housing doesn't balance out for cities in a way that sales tax does.

That is a reality of the system that we live in here and in many other parts of the country. It is a hard nut to crack.

Chair Wasserman continued the discussion: And the other side of that very same climb is that the cost to build a housing unit when you include all of the fees and all of the process, and heaven forbid you should put a time factor in that, is part of what makes it so difficult to build housing that is not outrageously expensive.

Commissioner Showalter added: I hear that tax thing all the time and it is absolutely true. The other thing that is absolutely true is our concept of the American Dream. The American Dream is that you have a house on a little plot of land that you can walk around.

A house with a plot of land is urban sprawl. Another thing we need to do is change that concept in peoples' minds and really market the joy of living in an urban setting because they both have their wonderful aspects. We have an awful problem with that little house and a plot of land. I don't think we should forget about that either.

Commissioner Gibbs asked: Mr. Maloney, are you willing and able to make this presentation in other venues?

Mr. Maloney replied: We are doing it all the time.

Commissioner Gibbs asked: Can you provide you email and phone number?

Mr. Maloney answered: Absolutely. We can have it on file and send it out to the group – mmaloney@mtc.ca.gov.

Chair Wasserman continued: Thank you for the presentation and your work. That brings us to Item 9, Briefing on Updated Projections of Rising Sea Level. Jennifer Philips staff of the Ocean Protection Council will make the presentation. Steve Goldbeck is listed as doing an introduction.

9. **Briefing on Updated Projections of Rising Sea Level.** Chief Deputy Director Goldbeck announced: You all know that applicants are required by your climate change policies to prepare a vulnerability assessment of rising sea level on their projects and construct the projects in a way that is resilient to mid-century and have an adaptive management strategy to end-of-century. The climate change policies don't say what numbers to use to do that and that is because the science keeps evolving. The policies call for the best available science to be used; to that end, we are going to have a talk now to discuss some of the latest science analysis that has been done.

Some of you heard in the morning at the Workgroup meeting a more extensive talk by Professor Gary Greggs of U.C. Santa Cruz but this afternoon we have Jennifer Philips of the staff of the Ocean Protection Council to talk about the new projections that have been prepared for rising sea level on the coast of California.

Ms. Jennifer Philips addressed the Commission: I am a policy advisor at the Ocean Protection Council and I work on a lot of our climate work on sea level rise and ocean acidification. The Ocean Protection Council is part of the California Natural Resources Agency. One of our council members is Resources Agency Secretary John Laird and we serve to bring together all of the state ocean and coastal agencies to protect our ocean and coastal resources.

A big part of our work is funding and making sure that we are basing decisions across the state on the best available science and advancing our state priorities around ocean and coastal protection.

I am going to provide an overview on our process to update the state Sea Level Rise Guidance document and present some of the findings from the recently released Science Report that is going to be a foundational piece of the state policy guidance due out in early January.

An important component with OPC of our sea level rise work is ensuring that this state guidance document is based on the best available science. Our current policy guidance is from 2013 and it's based on a national Research Council report from 2012.

Recent advancements in sea level rise science and improved understanding; in particular, of ice loss from Polar ice sheets have merited an update.

The audience for this policy guidance continues to be state agencies as well as local governments. It is really hoping to serve as a resource for cities and counties as they comply with Senate Bill 379 which directs local governments to incorporate climate adaptation into general plans.

It's also serving to assist state agencies for preparing for permitting, investing and adapting to climate change as directed by Governor Brown's executive order.

I want to give some framing of engagement and the broader process to update the guidance. In general, throughout 2017 OPC is looking forward to continuing to engage with you all, state agencies, local governments, tribes, vulnerable communities, NGOs and other constituents to update our policy guidance.

Between December 2016 and April 2017 we've had initial engagement with state agencies, local governments and constituents in the form of one-on-one interviews, listening sessions, state meetings and convening our state leadership group on sea level rise.

All of this engagement has served to better understand the needs of those folks that will be using the guidance document and make sure that it is as useful as possible.

Last week, April 26th, we had our OPC meeting where we released the latest science summary and OPC Council adopted a resolution to update the policy guidance.

Following from May to June we're going to have a series of public workshops to solicit feedback on our draft framework for the state guidance document. We are working right now on what that framework looks like and we'll be bringing it to these series of public workshops starting in a couple of weeks.

Then after that we are going to be drafting the guidance and in the October to November timeframe we'll have a 30 day public comment period on the draft guidance and in January we will be hoping to have approval by our Council of the updated guidance document.

Our policy guidance needs to be based on the best available science. Because of this we convened a working group of OPC Science Advisory Team. This was convened by our sister partner agency, Ocean Science Trust in early 2017.

We brought together seven of the leading experts on coastal processes, risk assessment, climate change, ice loss and ice sheet behavior as well as statistical modelling.

They released a science report on April 26th and that was informed by questions from a policy advisory committee consisting of representatives from the California Energy Commission, Ocean Protection Council, the Governor's Office of Planning and Research and the California Natural Resources Agency.

This policy advisory committee has provided questions to the scientific team to better understand the current estimates of sea level rise and how to understand the scientific context around those estimates.

These questions are all provided in Appendix 1 of the Rising Seas Document.

I am going to discuss the differences between the current guidance and what the updated projections will look like. First I want to highlight some of the scientific advances.

The relative contribution of sea level rise, what we knew about it from several years ago, is changing. The contribution of sea level rise used to be based on predominately ocean thermal expansion caused by ocean warming, and melting mountain glaciers.

That used to be the greatest contributor but now we are learning that the melting of polar ice sheets, Antarctica and Greenland, is accelerating and could soon be the dominant source of sea level rise.

The loss of the remaining mountain glaciers would only contribute a 1.6 foot rise is global sea level rise. However, if we lost all of Greenland and Antarctica this would represent about 24 feet or 187 feet respectively; so 24 feet for Greenland and 187 for Antarctica if we were to lose all of the ice sheets. However, we also know that we are not going to lose all of the ice sheets. They are not expected to melt completely in this century or even on millennial timescales but a loss of a small fraction of these polar ice sheets could have devastating consequences for California.

What we are really focusing on and what we've learned from the scientists is that the loss of the West Antarctica Ice Sheet is going to cause significant sea level rise amplification at the California coast due to our gravitational and rotational effects of the Earth.

For California the main source of Polar Ice Sheet melt that we're most focused on and thinking about is the loss of the West Antarctica Ice Sheet because of our gravitational and rotational force of the planet.

If we were to gain a foot of global sea level rise from the loss of West Antarctica; that would actually amount to 1.25 feet of sea level rise along the California coast.

I will now talk about the differences in the current guidance from 2013 versus the Science Report that was just released last week. The biggest differences here is that the 2013 guidance is based on low-scenario, a medium-scenario or a high-scenario of sea level rise whereas the science that we have been given and are going to think about as we update our guidance is based on probabilities. So we're not only getting projections of rise but we're understanding what the probability is of those numbers and over what timeframe.

Our current guidance from 2013 included a range of those projections, low, central and high over time scales but without information about likelihoods of those levels and when they would be met.

Our Science Summary that was released is the updated projections including ranges for several global CO2 emission scenarios along with the likelihood that those ranges will be met.

These probabilities we are hoping can help make better decisions at a local and statewide scale. This sort of framework, this probability-based or likelihood-based framework has been used in many other regions throughout the U.S. such as with New Jersey's Climate Adaptation Alliance and regional groups that are underway right now in Washington State.

One thing that the scientists have told us is that this probability-based framework or a framework, based on likelihoods, may be under-estimating extreme sea level rise from the loss of Polar Ice Sheets, particularly under high emission scenarios.

Scientists have included an extreme sea level rise scenario alongside with these probability distributions.

The orange projections on the screen are from the National Research Council Report from 2012 that was used to inform our 2013 Guidance. The pink and red bars are projections based on a low-CO2 emissions scenario and a high-CO2 emissions scenario in the Rising Seas Science Report.

We also have the extreme-scenario; the red dot at the top that is based on the latest modeling work from NOAA. That does not have any probabilities or likelihoods but it is an extreme-scenario of ice loss from Polar Ice Sheets.

These tables are our updated projections that were provided by the team of scientists. It is Table 1B in your report. This is projected sea level rise measured in feet in San Francisco. We've also done this for Crescent City and La Jolla.

In the blue box we have probabilities and distributions of changes of sea level rise expected by 2100 over an increased-emissions scenario. There is a 50 percent chance by 2100 that sea level rise meets or exceeds 2.5 feet. The next box over shows a likely range, so it illustrates a two-thirds chance that we have that range of 1.6 to 3.4 feet of sea level rise by 2100.

Right below that we have the extreme-scenario. It is just a single scenario because we have not assigned probabilities to it. That is stating that there could be up to 10 feet of sea level rise by 2100.

Commissioner Gioia asked for details: Can you differentiate the various RCP?

Ms. Philips explained: I did not want to get too technical but RCPs are emissions scenarios based on the Inter-Governmental Panel on Climate Change. So RCP 2.6 is a low-emissions scenario meaning we are very aggressive with our climate policies.

Commissioner Gioia inquired further: Can you quantify it in terms of million metric tons?

Ms. Philips replied: I don't have that number off the top of my head.

Executive Director Goldzband clarified: I can tell you that Gary Griggs, this morning, said that's Paris. He said that 2.6 is the Paris Accord.

Ms. Philips added: And then 8.5 would be where we don't do anything. It is a kind of business-as-usual scenario.

Commissioner Gioia continued: So 2.6 assumes the goals of the Paris Accord, 8.5 is not doing anything from current action – and then 4.5?

Ms. Philips explained: that is doing some but not as much as Paris. When we go back to this we are using Paris 2.6 and then 8.5; so the low and the high.

Commissioner Gioia offered an observation: An interesting way of expressing this is that the difference between not doing anything and doing Paris Accord goals is around one foot. That is always important to extract. Sea level rise is happening no matter what; the question is, at what level? And we're saying, the difference is if we are really aggressive it's a foot less than if we don't do anything.

Executive Director Goldzband added clarifications: I am going to add a friendly amendment to that. It is not quite correct because what the median and likely range are described at are different. The 2.5 feet is a 50 percent probability that it is going to be 2.5 or above. It's a flip of a coin.

The likely range is different; that there is a 67 percent probability which means that you got a tail on either end that totals 33 percent that it will be between those two numbers.

It is not quite apples and oranges but it is different.

Commissioner Gioia pressed for more detail: So what is the median between the two? I am just trying to understand how we would express in some accurate way the difference between doing something and not doing something. I look at the likely range between 1 and 2.4 and between 1.6 and 3.4, so that's a difference of between about half a foot and one foot. Isn't that sort of an interesting way of saying it? It's about a one-half to one foot difference as to whether we do something or not.

Mr. Philips agreed: Yes. We can definitely give –

Commissioner Gioia interjected: I mean, numbers are great. We don't do a very good job here in the public or the scientific community expressing things in lay language so people can understand them. What I'm asking is; it's a really good – I think we should come up here accurately with what is the difference at San Francisco Bay for being aggressive and meeting the Paris Accords or doing nothing.

If we can't figure it out we have to figure out how to convey that. So, can you get back to us on what language would be the right language based on the right science. Looking at this is looking at the likely ranges between one-half and one foot difference. You should get back to us.

Commissioner McGrath had some concerns: I'm a little worried about bogging down there. It's clear that sea level rise is going to continue and accelerate. We don't know how much it's going to accelerate but unless you do something about CO2 you've got a certain amount of sea level rise cooked in the books.

For those of us who are involved in the funding and the renewal of infrastructure, it matters particularly when we are rebuilding infrastructure because unless we amortize what we are doing and say; okay, this is good for 50 years but then it's going to be cooked, we're committed to replacing that infrastructure at maybe a 30 to 40 year interval with even more expensive infrastructure. And it is really hard to pass bonds for a 40 year period.

The certainty and the acceleration are probably more important than exactly what the number is.

Commissioner Gioia responded: I appreciate what you are saying. I will stand by my comment having been in office for nearly 30 years that we do a poor job of communicating to the public in a way that is understandable and it can be grasped. Scientific data in a way that can be appreciated and move people to action is what we have to do in the political world. We need to move people to support policies and actions.

I am asking the folks who look at the data to give an accurate range. The difference between doing something and not doing something is, this. And we know in the Bay Area what it means to have a difference between a half a foot and a foot. It means certain areas will be inundated, some will not; it's going to cost this much versus this much. We know that the communication of politics in this country is very simplified. We have to be simple and accurate and meaningful.

So, getting caught up and bogged down in the data is good for us that are studying the issue but is not particularly effective at moving the public.

Ms. Philips agreed: Right. And I just want to qualify, that again, this is the science so we have those seven scientists come together and give us the report and we as policymakers try to stay out of it and receive the science as one piece. Our next six or seven months of work is taking these raw numbers and being able to not say, RCP 2.6 but what does that mean? How is that playing out? What does it look like at different scales?

We wanted to come here early and present the raw science and then talk about the next steps for engagement.

Looking at the next projections – again, this is the extreme scenario of sea level rise with West Antarctica melting based on a modeling report from NOAA. This is something that the scientists are telling us we really need to think about and consider. But there's a lot of uncertainty about when and the extent to which we're going to see this. We are not able to assign probabilities or likelihoods to this extreme scenario.

The blue box highlights projected rise in sea level rise in feet to 2100 and how much we will exceed the probability with which we will exceed a particular height of sea level rise.

By 2100 under this increased-emissions scenario we would have a 96 percent chance that we would meet or exceed one foot of sea level rise, 70 percent that we would meet or exceed two feet and so on. This is just for San Francisco and we've done the same for La Jolla and Crescent City.

The scientific key findings are helpful for framing this discussion is that our scientific understanding of sea level rise is advancing at a rapid pace. There's been a huge surge of information from the 2012 and Sea Report to what we know now that's in this report.

The scientists have recommended and suggested that we may need periodic updates of our policy guidance. The Working Group recommended that we may need to look at a minimum of updating our policy guidance every five years to keep up with the science.

The next key finding is that the direction of sea level change is clear. The sea levels are rising so it's not a question of, if, but, when. Our rate of loss from the Greenland and Antarctica Ice Sheets is increasing and this is exemplified through the extreme scenario that we've presented.

We also have new scientific evidence that has highlighted the potential for extreme sea level rise. While our model results have revealed the potential for this extreme sea level rise; during this century the precise magnitude and timing of when the Antarctic Ice Sheet may begin to contribute to rising sea level should still be considered highly uncertain.

The probabilities of specific sea level rise increases can inform our decisions. This is an explanation for a shift from the scenario-based report to looking more at probabilities or likelihoods.

Our current policy decisions are shaping our coastal future. So there is a lot of work that needs to be done over the next six months.

The last point here is that waiting for scientific certainty is neither a safe nor prudent option. We do need to consider extreme sea level rises in decisions with implications past 2015 to safeguard our people and our resources across coastal California.

We will have our first workshop in a couple of weeks on the South Coast in Los Angeles. Then we will move to the Bay Area and do a joint workshop with Safeguarding and sea level rise work. And then we will do a workshop on the North Coast and followed by a workshop with the Safeguarding Team in San Diego.

Throughout all of this there's going to be a lot of additional coordination with state agencies through our various working groups and individual agency conversations as well.

Commissioner Nelson commented: One of the things that I have noticed over the years is that over time our projections have often crept up and we can see this compared to our previous guidance. It's really helpful to see this incorporation of probability. It gives us a more, well-rounded understanding of the challenge. But as Commissioner Gioia pointed out, it brings with it messaging challenges.

I wanted to make sure that I heard one thing correctly. If I am remembering correctly there is only one model currently looking at Antarctic ice loss. Is that right?

Ms. Philip responded: I believe that is right. We can check with Cayan but the H++, our extreme scenario, is based on one model. It is based on this NOAA model.

Commissioner Nelson continued: One of the differences between this projection and the last one is that this one begins to incorporate the probability of Antarctic ice loss.

What I thought that discussion meant was that all of this probability as to the extent that it includes Antarctica ice loss is based on one model rather than what we have often seen elsewhere as a broad range of models looking at this issue.

I wanted to ask what that says to us about the probability of those estimates being right or wrong. It's comforting but not precise if a broad range of models point in the same direction. Do we face a greater risk of under or over shooting if we rely on one model for Antarctic ice loss?

Ms. Philips answered: I think that is a great point and exactly why the scientists would say that this extreme scenario is still highly uncertain because it is based on this one model from NOAA that was released this year.

Commissioner Nelson stated: So that means not unlikely but uncertain; no probability assigned to that.

Ms. Philips replied: Yes. It is something that we should think about and consider but there's a rapid evolution of our science and our knowledge so right now we wanted to have that in but it is based on one model.

Chair Wasserman chimed in: At some level, as we all know, these are probabilities and scientifically informed but still guesswork. In that context of guesswork, at the workshop this morning, Gary Griggs the Chair of the Council, when pushed, essentially said; his guess would be a reasonable projection at 2050 would be a foot and a half to two feet and by 2100 three feet, keeping in mind those are minimums.

Commissioner McGrath commented: Apropos of that and apropos of the comment of communicating this; we've seen a trial run of 2.7 feet in the Bay Area in 1983. I spent a significant amount of time studying that and putting on a workshop about it. It's unfortunate that drones have come to us in this decade and not that decade because there would be nothing that could illustrate the problems like drone pictures of how much was flooded.

One of the things that might help explain it are press coverages of the ’83 flooding because you had both coastal flooding and you had riverine flooding and it was really widespread. We have seen it. It’s not like we just have to model it. We had a prototype and it was less than three feet. The idea of three feet as a hydrologist just scares the bejabbers out of me.

Commissioner Gioia commented: To me this always gets to communicating the difference between what happens if we don’t act versus what less happens if we do act because we talk about sea level rise will be X. And we know it is inevitable at some level. It is trying to convey in terms that people who live here understand, not just the number of feet if we don’t do anything but it means this shoreline is going to be impacted; something that they know.

Hypothetically speaking, Oakland airport runway will be inundated and this will be the effect on the airports at Oakland if we don’t act versus if we do. The folks who work on this understand where the important points are along the shoreline, the most vulnerable areas. We are looking at that with BCDC’s help along the Contra Costa shoreline so we can convey and say, if we don’t act, here are the areas that are going to get inundated and here is what it is going to cost.

It’s almost like selecting points from around the Bay Area that people understand and relate to so that they can understand what the difference is in the future and then what it means for them. We should think about that.

Chair Wasserman agreed: We absolutely should think about it and in part I think this is a good bridge to our next discussion on the Strategic Plan. I would also note that we’ve tried to tackle this very large problem here at BCDC in a relatively organized way in the sense that we’ve had the workshops and working groups on rising sea level. Generally, those merged into our Commission workshops which merged into our Action Plan; the Bay Fill Working Group has moved to the working workshops that we are now doing at the Commission level. The financing piece that we are now at the working group level will do the same. And the one behind that which in some ways may be the most important one but needs to be infused by all the others; is the educational campaign that we are going to have to undertake to make people aware of this, willing to act, willing to support the variety of actions and funding actions that will be necessary to successfully adapt to this problem that we know is coming.

Thank you very much for the presentation and the work. That brings us to a discussion of the Strategic Plan.

10. **Commission Strategic Plan Discussion.** Chair Wasserman announced: Matt Marvin of Kearns and West is here who will present the summary of where we stand.

Mr. Matt Marvin addressed the Commission: I am part of the team that is working with staff and Commissioners to revise and update the current Strategic Plan. I am here today with some of the members of the drafting team to provide and update on the Draft Strategic Plan revision process. I will start with a recap of the process to date.

The drafting team members will then provide updates on specific portions of the Plan including goals and objectives. Next we will go over future steps in the revision process and allow you all to engage in discussion about the draft you have today.

Over the past few months we have gotten an array of feedback from multiple different sources; these include surveys intended for Commissioners, for staff and members of the public to gauge the effectiveness of the current plan.

We have also conducted two workshops with staff members and a Commissioner public workshop in March. There were also staff assessments of the current Strategic Plan that were done by each division.

And finally, there have been review sessions with senior staff, Commissioners and division-specific meetings to review the current Strategic Plan.

This feedback informed an iterative process that I would like Larry to discuss the introduction after which the drafting team members will discuss goals and objectives.

Executive Director Goldzband presented the following: the Draft Strategic Plan Update that you have in front of you which is a revision of the current Strategic Plan is now in its eighth draft. We and the drafting team are now calling it 7.1 if I remember correctly. It has been iterative.

The introduction which is about a page and a half long essentially can be summarized in this way, we face an awesome future at BCDC and we need to take advantage of it. In many respects what you just heard about rising sea level and what we heard this morning is the equivalent of AB 32 for BCDC.

We need to move from our current organizational processes into something that is at a higher gear. That means that the policy context surrounding rising sea level and its associated ramifications on our regulatory, planning and administrative functions has dramatically shifted in the past 10 years. It was 10 years ago that BCDC issued the first inundation maps.

The previous Strategic Plan was the first one to be developed in real partnership among Commissioners, staff and the public. It was a great first start. It has been somewhat successful.

The real change between this that you are seeing and the current plan is that this is far more directive. It is far more directive because over the past three to four years BCDC has very much changed in the way it does business with regard to Commissioners and with regard to Commissioners and staff working together. We have actually grown a tremendous amount as a staff based upon what we've learned from the Bay Plan Amendments and our use of them and our planning structure.

We have three goals within the Strategic Plan. The first is to accomplish our daily strategic work which isn't going to go away. The second is to lead rising sea level, adaptation planning efforts throughout the Bay Area. And the third goal is to improve our organizational health.

Without the latter we're not going to be able to accomplish the first two. And that means that when I am going to be at the Resources Agency on Monday I am going to start advocating for more staff and more resources.

Instead of moving from being the little engine that could which has been BCDC's mantra for 50 years, we now have to shift to a big mighty locomotive because that's the only way that we as staff are going to be able to accomplish our statutory responsibilities.

Whether Resources and Finance accepts I can't tell you. We are going to start that advocacy process on Monday.

Another major difference between this upcoming Strategic Plan revision and the current one is that we will be tracking its implementation in a very detailed way. After the Commission approves whatever the final plan is we will then go out with a contract to create a work plan which can then be followed, implemented, tracked and reported upon.

The other issue to think about is that we've had some discussion about the vision and you will see in the Plan the vision is to be the national model for coastal management.

We didn't have a vision in the last Strategic Plan but that vision that we have here was very much incorporated in the first goal. Staff took it out and said, this should be the vision.

But the mission did not change. The mission is still to protect and enhance the San Francisco Bay and encourage the responsible and productive use of its resources for this and future generations. It is either the same or very close to it.

I would finish this introductory part by saying, your October 6th recommendations, your policy recommendations on rising sea level have forced us to look at the way we are doing business and I just came back from Las Vegas and as they would say in Las Vegas, what we're going to do is we are going to go all in because we don't have any choice. And that is part of what the message is going to be on Monday with the Resources Agency.

Now let's go to the drafting team so they can go over goals one, two and three and then we'll go for questions. They will come on up and introduce themselves and go from there.

Sediment Program Analyst Anniken Lydon addressed the Commission: I am here to discuss Goal 1. After many discussions with staff and Commissioners goal one was developed into the language that you see on page four of the Draft Strategic Plan and also at the top of this slide which is to enhance the unique value of the Bay Area and enable all its communities to flourish.

This goal and its objectives encompass the authority and the mandates of the Agency and has been refined primarily to guide and focus our Agency's regulatory functions in the coming years.

It specifically focusses on encouraging the enhancement and conservation of natural resources of the Bay and improving shoreline areas and experiences for all communities in the region.

This goal does not enumerate all of the work that the regulatory and the planning divisions are mandated to perform but it emphasizes key priority areas to guide the Agency's work and efforts over the next three years.

For example, Objective 1.1 encourages Bay habitat restoration and includes actions ensuring that restoration projects align with regional restoration goals and increasing the staff's capacity to use the best available science to analyze emerging trends and habitat restoration.

In addition, another example in Objective 1.3 which focusses on updating key statutes, policies and regulations and includes actions to prioritize and incorporate recommendations from the Commission workshops into the amendments or updates that are identified as being necessary.

Some of the similarities to the previous plan is that this goal reflects and carries forward many of the ideas developed for the 2013, 2016 Strategic Plan which include both objectives and actions in this new plan and are related to improving public access, identifying key ways to enhance the dynamic natural resources of the Bay and the experiences of the people within the surrounding communities. It also includes the data-driven enforcement program.

Some of the new ways that this goal has become more focused include encouraging habitat restoration and enhancement projects where appropriate; also identifying a process in the near future for prioritizing and moving forward with necessary statute, policy and regulation updates that are ways that we as an Agency can help the region prepare now for future rising sea level and changing conditions. This goal also incorporates upon and builds upon much of the ongoing work that has come out of the Commission workshops over the last few years and to identify the updates that may be urgent or necessary.

Coastal Program Analyst Todd Hallenbeck presented the following: The overall intent of Goal 2 is to recognize and refine the expanded role of BCDC in helping the Bay Area prepare for the challenges of rising sea level.

The goal and many of its objectives come directly out of the recommendations that were made and adopted back in October as well as recommendations made by the Policies for a Rising Bay Project carried out last year.

Objective 2.1 is focused on BCDC leading the development of regional adaptation planning and using the ART approach includes the formation of a Regional Adaptation Plan Working Group with public/private NGO organizations to understand vulnerabilities and recommend adaptation approaches.

Objective 2 highlights the importance of integrating and supporting local adaptation efforts with a particular focus on environmental justice issues by engaging a broad spectrum of stakeholders.

Objective 3 helps BCDC increase its coordination between regulatory and planning staff in integrating rising sea level information in our day-to-day activities.

Objective 4 recognizes sediment as a resource and highlights the need to encourage the beneficial reuse of sediment to help meet the challenges of rising sea level.

Objective 5 promotes the adaptive management to address scientific, economic and societal uncertainties and includes developing a permitting tool kit to help clarify what should be included in adaptation plans including monitoring requirements.

Objective 6 encourages development of green infrastructure to protect our shoreline through the development of technical guidance about the design and implementation of these types of projects.

Objective 7 emphasizes the need for a robust public outreach campaign and to understand and communicate regional vulnerabilities and resilience and includes the development of a regional portal to communicate information and data to the public.

The similarities to the previous plan include those concepts of reevaluating policies to better address the challenges of rising sea level, recognition of the value of some types of fill and the utilization of a collaborative approach to find regional solutions and developing a public education campaign; although this goal really does focus those concepts on the challenges of rising sea levels.

New concepts have been added that are related to the emphasis on environmental justice issues; the inclusion of adaptive management and green infrastructure as part of the plan.

Associate Governmental Program Analyst Christine Nutile addressed the Commission: Goal 3 is to improve organizational health and performance. The overall intent of Goal 3 is to address vital needs pertaining to staffing, work flow efficiency and utilizing modern technologies.

Many of the objectives covered in Goals 1 and 2 are dependent on the success of Goal 3. Staff and the Steering Committee have created the objectives and proposed actions you see before you.

We have a summary of the five objectives listed here for you. Objective 3.1 expand staff. Objective 3.2 retain top talent. Objective 3.3 integrate technology. Objective 3.4 improve information sharing. Objective 3.5 is building our HR program.

Objective 2 and 3 speak to our most pressing organizational issues. In Objective 3.2 we focused on proposed actions that make BCDC a great place to work while providing a viable means to earn a good living in the Bay Area.

To accomplish this objective we are proposing that the Commission and senior staff take actions to maximize staff pay and benefits and place greater emphasis on improving morale.

In Objective 3.3 we would like to emphasize that our ability to more fully incorporate technology has the potential to maximize our human resources. Too much of the work we do depends on paper processes that require manual data entry. We can streamline much of this work by transitioning to more of a digital environment.

Enforcement Analyst Matthew Trujillo presented the following: Many of the objectives in the current draft plan are similar to those of the prior plan. The prior plan also stressed the importance of expanding and retaining staff, staff development, utilizing technology and improving work flow.

In this plan we made some changes to reflect a more holistic approach to addressing such pressing issues as staff turnover and preserving institutional knowledge.

Instead of using the term, “work environment” in the goal language we used the term, “organizational health”. This reflects a more holistic approach.

The prior plan also talks about documenting, “best practices” but in the current plan we are going to step further a proposed action to develop standardized procedures; very concrete.

The prior plan also includes the need to develop and retain staff as one of its objectives. However, in this plan we propose to turn those into two separate ideas that would allow us to develop more focused and achievable lists of proposed actions.

Mr. Marvin offered some closing remarks: In terms of next steps we will take any feedback from you today and incorporate that into a further draft between now and towards the end of the month. On the 26th we will look to get you an updated draft for consideration at the June 1st Commission meeting where you will consider the adoption of the Strategic Plan.

We will open this up for discussion and I am hoping that Chair Wasserman and Commissioners involved with the drafting process will be able to lead and facilitate the discussion. Thank you.

Chair Wasserman continued: Welcome Commissioner Ranchod and we announced your appointment earlier. We appreciate you being here.

Commissioner Ranchod commented: I appreciate the opportunity. I am excited to hear that we are going to be preparing a work plan to track implementation of each of these goals and objectives. Are there actually going to be measurable metrics or other benchmarks for each objective as part of that? And are we going to get to review that this summer? Can you address that further?

Executive Director Goldzband responded: What staff has done already is underneath each of the objectives are listed anywhere between three and eight different actions that the staff is working on to say, these demonstrate how we need to do this. Each of those can be measured in some way, shape or form; quantitatively or qualitatively.

How those are measured we haven't figured out yet. We haven't figured out exactly whether it's a probabilistic thing or a yes/no thing or whatever it might be. That is what the next contract will help us do.

It has to be arranged in such a way that the staff can follow it and that we can then present it to you in a way that you can follow it.

Commissioner Ranchod had more questions: Is there a plan for once we get through all of that and have the document ready; is there a plan for bringing it back on some regular basis before the Commission?

Executive Director Goldzband answered: Quarterly. I don't think we would do everything quarterly. We might take a goal a year or a goal every quarter or something like that.

Commissioner Nelson commented: I have two big-picture comments and I want to thank Larry about his opening comments about starting the conversation with resources about resources because two things are clear to me based on our last two years' worth of presentations and the Rising Tides Work Group.

The first is a very simple realization – the Commission's focus traditionally has been to issue permits. And our message to local governments, generally in the past is; don't bother us when you are planning, send us your permittees. Send us folks once you have given them permits.

That is not going to work. It's very clear that there is going to be a much more even split between our focus permits and our focus on planning. There is going to be a dramatic increase in planning.

We are doing more than we were doing five years ago. And five years from now we are going to be doing a lot more than we are doing today. So that conversation about resources is really important.

I also wanted to mention one other place that I really had not been focused on until we were well into our presentations about sea level rise impacts and how we deal with that; we've been issuing permits for 50 years to permittees who have a legal responsibility to maintain public access in perpetuity.

And we now have, we are now issuing permits that reflect a need for adaptive management to respond to sea level rise. In the past we have not put a lot of resources into enforcement and we've had the luxury of having staff on weekends bicycling past an applicant and seeing if they have finished the path let's say.

Once they build the amenities, once they completed construction; we thought our job was done except for a few applicants here and there who would violate requirements for public access. We are facing a very different world.

We have hundreds of applicants whose job is to maintain public access in perpetuity. As we see sea level rise creeping up that is going to be a greater and greater challenge for permittees around the Bay Area. And as sea level rises our adaptive management requirements are going to kick in. And that is going to require much more active monitoring and enforcement with regard to permittees than we have traditionally done.

That is one that I had not really been thinking about two years ago when we started this process. When we think of slices of the pie I've traditionally thought about our planning side and our permitting side and it was clear to me that planning was going to increase. But there is a whole enforcement challenge here that we really have not been thinking about so much at the Commission level. I just wanted to highlight that.

Executive Director Goldzband commented: I urge you to look at Objective 1.4 with the second proposed action which is, develop and implement a permit compliance system. One of the things that Adrienne Klein who is sitting in the audience has been screaming about for any number of years is that she does not have enough staff to really do enforcement much less compliance.

Part of what the Enforcement Committee has done an incredibly good job with during the past five or six months with the help of Commissioners is looking at a strategy to actually be able to enable the enforcement team to prioritize what it needs to do and to include compliance as part of that. That will be part of the discussion on Monday.

Commissioner McGrath found the conversation thought provoking: I am excited about this. For many years, since the time I have been on the Commission; BCDC has done strategic planning well and it's getting better. And it's getting more and more oriented towards the activities of the staff and measurables and those are the reforms that are needed.

I have two kind-of quibbles that don't have to do with the goals but have to do with the wording and making sure that they are as accurate as they need to be.

The first one is Objective 2.4. It's an objective to increase the use of sediment whether it's dredged sediment or it's material cleared from flood control channels or fill on the fly if it's clean enough; the language here I would urge should be a collaborative language rather than a regulatory language. There's the old saying that if the only tool you have is a hammer you think that every problem is a nail – but, in fact, not all problems are nails.

I think the idea of collaborative and incentive programs to increase use of sediment would be a more effective wording.

Objective 2.6; the term, green infrastructure – this is a problematic term. Those of us who have dealt with legislation and court cases know that you cannot use the same term for five or six different things. You can't use synonyms for the same thing. The courts just don't let you do that. Green infrastructure means in some contexts, we're going to make sure that water gets into the ground so that we're going to reuse it for drinking water supplies; that is

one definition. In the context of the Regional Board's regional stormwater permit it means that you are going to clean up the water of trash and other contaminants before it goes into the Bay. And there is a third definition here which is a soft shoreline.

I'm sure there are more. We really need to be clear. I have no problem with the goal here. I just want to make sure that the language is not ambiguous. I've said this before and I'm going to say it again until the language is not ambiguous.

If we mean soft shorelines or things like that; that's the term we should use, not a term which also means several other things.

Commissioner Pine had questions: I had a couple of questions on Objective 1.1 and maybe a question about the wording at the high level for the goal. The second to the last bullet point talks about, standardize the monitoring plan requirements for restoration. I know there is a lot of discussion among agencies about monitoring and that's also part of the permit burden. I'm not familiar with BCDC's Wetland Habitat Assessment Team. Can you tell me a little bit about that or what we hope it might be?

I would also like to know to what extent this would be an effort that would incorporate the many agencies who are concerned about monitoring.

Ms. Lydon responded: For the Wetland Habitat Assessment Team, that's an internal agency team that's formed mostly with regulatory staff and some planning staff. We have gotten together a few times to look at monitoring reports that have come in and how we are reviewing those; different parameters that are in the monitoring plans and that are being reported. This action was trying to get at making it easier for our regulatory staff to know when they get a monitoring plan for a restoration project that the plan is consistent with all the other monitoring that we are requiring for other areas. Granted, how that monitoring actually happens is probably going to be site-specific and different but we want to make sure that some of the parameters that are being reported are consistent.

For our staff we want to have consistency knowing that we're going to require, you know, 10 year monitoring plans consistently across the board. It is trying to resolve making it easier for staff review of monitoring plans that come in.

Executive Director Goldzband added: It goes the other way too. If you have a consistent set of standards that you use; if you consistently require monitoring of certain things then permit applicants, before they even start, recognize what it is that BCDC needs from them and discussions can occur from that point about what adaptive management and monitoring really includes.

Mr. Goldbeck agreed: That's exactly right. I was going to add that we are also looking at it from the other standpoint in terms of the other agencies and trying to coordinate what the permitting requirements are from others and to the extent that we can have one set of requirements and also the effort that is now starting to be looked at in terms of regional monitoring as opposed to agency by agency.

We are trying to put together all of that. It actually came down to that we were looking at some monitoring plans and asking, has anybody read these? Are they things we need to be tracking? It's grown into this effort and it is going to help in terms of that regulatory burden as well. It will help us and it will help the regulated community.

Commissioner Pine inquired about monitoring: I'm not clear and I have a lot to learn about monitoring. Should this be standardized BCDC's monitoring plan? Many agencies have monitoring plans. When I read that I'm not sure if they are referring to our own or to all of them.

Ms. Lydon answered: It's the ones we would require to be submitted for BCDC's permitting purposes. We can add BCDC in there to clarify that.

Commissioner Pine continued: There is the next level up which is a coordination effort. On the final bullet point to understand what, track authorized restoration projects means; I think there are some other groups that do this now like the San Francisco Bay Joint Venture. They have a pretty good inventory of the projects that have been done to date and I have a question about whether we are thinking of creating a database or whether that track is being used more informally?

Mr. Goldbeck replied: We actually have a project tracking system, a GIS system in-house. We have linked up with these other efforts and we are sharing data layers. So we are converging on this.

Ms. Lydon added: This also makes sure that we are tracking the success of the restoration over time and how many acres are actually being restored and to what state.

Commissioner Pine explained: As the Restoration Authority begins to ramp up and work starts to get done; we want the public to be well aware of the progress and the extent that some of this is accessible to the public.

There are some other efforts and obviously BCDC needs to track its permits and it is doing this work as well. Maybe we can think more about this as we go forward.

Finally, if I just picked up this paper and read Goal 1, enhance the unique value of the Bay Area and enable all communities to flourish; if that is all I read. I would never think that was BCDC. I would think that was ABAG or MTC. That is kind like the missing regional government. I might try saying, enhance the unique value of the San Francisco Bay and public access to the shoreline or something like that. I will give that to you for your consideration.

Commissioner Peskin commented: I fundamentally agree that Goal 3 is inextricably linked to 1 and 2. This is a 1.1 comment under Proposed Actions. I was thinking that the increased staff capacity may not belong in that second bullet. I think it's spoken to in Goal 3. I think if we just use the best available science and understand emerging trends and the staff capacity is spoken to in Goal 3; minor comment.

Ms. Lydon asked: So you are saying, remove that proposed action because you think it is covered in Goal 3?

Commissioner Peskin explained: No. I'm saying just remove the, increase staff capacity. I acknowledge that increased staff is needed for that but I think that is spoken to in Goal 3.

Commissioner McGrath had reservations about responses to Commissioner Pine's question: I am still a little troubled by the response to Commissioner Pine's comment about monitoring requirements. Certainly we need to monitor to know progress but we should coordinate that monitoring with other agencies rather than feature just BCDC's.

There is a distinction between a restoration plan; no restoration project that I have ever seen has met all of its goals. That doesn't mean it wasn't a really good thing and the monitoring is more on making sure that we continue to advance the science rather than something for the most part that is going to be a matter of compliance.

On the other hand, mitigation – there is a compliance question because you have lost something and in restoration you have not. And that is kind of lost in here. I would like to see this be just a little bit more user-friendly so it got across the idea that monitoring is going to be coordinated among the agencies for efficiency and user- friendliness. That's the more the message I would like to hear out of this.

And certainly I think we ought to monitor mitigation but I don't think we necessarily need to put that in our Strategic Plan. Given the attention that being efficient with Measure AA funds has gotten, I'd just like to send a good message here that we are going to coordinate our monitoring with the other agencies.

Mr. Goldbeck replied: That is our intention and we will work on language to clarify that.

Commissioner Showalter commented: I feel very strongly about what you just said. I think that there is monitoring and tracking that is done on a variety of levels. And because we are really working with new restoration science; when you think of tracking and mitigation we usually look at, you know, did they plant X number of trees, did they restore so many acres, that kind of thing. That is all well and good to do but in addition to that in adaptive management we need to do scientific investigations that may not be associated with any specific project necessarily or any specific construction project; to say, these are the processes or these are the things that are going on so we can do a better job of this.

Adaptive management really needs to include the tracking of the acreages and more fish and more birds and that kind of stuff with; did it work or didn't it work and why. If we don't get to the, did it work or didn't it work and why then we're not going to be using the publics' money efficiently and we're not going to be meeting the incredible needs that we have to protect the Bay Area from sea level rise.

Forty or 50 years ago we just thought of counting things and at this point that is not what we need to do. We really need to support the science.

I like the use of, “best available science.” I love that phrase. This is music to our ears in the scientific community. This used to be just a statement but now it’s a political statement. I am really glad it’s in there.

I really like the idea that this is short and sweet because in the environmental field we have a tendency to be very loquacious. We create these documents that we measure in how many inches thick they are and that kind of thing and the result of that is that people don’t refer them nearly as often as they should. This is very short and sweet. People will be able to flip through this in 15 minutes to find what they need to find. I think that is great.

The other thing that I am really pleased to see in here is the very explicit discussion of the use of sediment. That is a huge part of the history of this organization and it is something that really needs to change going forward so that we can restore the shoreline and help with land subsidence that has been particularly egregious in the South Bay.

I urge people to take some quiet moments and read this through and think about the corrections.

Commissioner Gorin commented: We’ve had a number of small discussions around the posters projects that we have been working on. It boils down to the role of BCDC and our local jurisdictions. Do we have a role in promoting better planning and better discussion at the lower level?

Working with ABAG and MTC we absolutely should be pursuing any opportunity available to make sure that our local government levels understand what it is we’re facing. They only update their general plans, maybe the housing element, once every seven years. If they can find the money, the general plan, maybe once every 10 years. We had better work now to make sure that we have the opportunities to work with those counties and cities moving forward with their general plans to give them the tools on vulnerability assessments and the language that should be incorporated in their general plans especially for those cities and counties that may be affected by Bay level rise and tidal increases and influences.

I did not see language in here calling out BCDC and the staff to work pretty aggressively with the planning agencies around the Bay to ensure or to provide or help to give them the information and to give them the links on where they should be accessing information for what we have been doing and the tool kits, especially for some of the tool kits connecting to regulatory agencies.

And just a minor little language change that we might consider under Objective 1.2 talking about expanding and promoting diverse, high-quality public access; when we are talking about developing a regulatory tool kit to facilitate I would add, the design, the use and enjoyment because not every entity understands what design really means especially in light of rising tides.

This is a great job and I loved it and it was important. I'm really concerned about how we are going to use it, how we are going to educate folks about it and especially work with those communities who are now engaged in the general plan discussions.

Chair Wasserman continued: Thank you very much for the work and the presentation and we look forward to version eight or 7.2 or however you want to label it.

Executive Director Goldzband added: Commissioners you have an absolutely awesome group of drafters. The staff involved has worked tirelessly on this. They have taken it upon themselves to do more than just coalesce. They are making decisions. They are analyzing and they know they can't everybody happy but they also know that what they're doing is actually going to be incredibly important and so they are willing to take some heat.

Chair Wasserman moved to Item 11 on the Agenda.

11. **Briefing on Flood Control 2.0.** Sediment Program Manager Brenda Goeden presented the following: We are moving from the Strategic Plan which includes sea level rise, flooding and sediment into a briefing on Flood Control 2.0. This was a project funded through the Water Quality Improvement Grants of the EPA.

We are going to give you a quick snapshot of the tools and the outcomes of the project. It was a four-year effort by a group of folks from the San Francisco Estuary Project, the San Francisco Estuary Institute, BCDC and the San Francisco Bay Joint Venture, as well as the Bay Area Flood Protection Agency Association (BAFPA).

Today my partners in crime, Scott Dusterhoff and Adrien Baudrimount are here to talk to you today about the project. We will share the presentation because there are multiple pieces.

Mr. Adrien Baudrimount addressed the Commission: We are going to start with a brief presentation of what Flood Control 2.0 is. I am pleased to be reporting on the completion of this project. It was a four-year project and it was completed at the end of 2016. Flood Control 2.0 is about restoring habitat and shoreline resiliencies through a new generation of flood control channel design and management. We know that we are facing aging flood protection infrastructure that increases the economic costs and risks in the face of river flooding and sea level rise. The tidal fluvial interface is where all of our wetlands are and is an incredibly important area of our system.

Se level rise is a reality and we are going to have to be prepared for it. The question we asked is how can we meet future flood control needs and also restore and improve the future ecosystem functions at the Bay interface? The project was designed around three main components. The first component is research and that is composed of a channel synthesis, a regulatory analysis and an economic analysis. This will be presented in more depth later in this presentation. The second component of this project is implementation. We were very lucky to be working with local flood control protection agencies from around the Bay. We worked with

Novato Creek, San Francisquito Creek and Walnut Creek. They were all in different stages of planning and implementation. The third component is the highlight of this presentation. This component is the toolbox. This is a group of online resources accessible through a web page, and among all the resources is SediMatch, which is an online database to find and locate available sediment.There is also a regulatory guidance document; a benefit/cost assessment model and several podcasts. All three components are working together feeding into each other.

Mr. Dusterhoff spoke: For the remainder of our presentation we are going to walk through some of the tools within our online toolbox. I am going to start out by talking about our regional channel synthesis or what we call our regional channel analysis.

The output from this work in a report that we just released called, Changing Channels. This analysis entailed looking at the change in channel geomorphology at the Bay interface. So we identified all the channels that historically drained into the Bay. Many of those channels have changed over the past 150 years and now include flood channels. We then did a regional sediment analysis looking at the supply of sediment to these channels as well as the amount of sediment that is deposited and removed from these channels. And then we synthesized our findings into high-level management recommendations for these major flood control channels around the Bay that drain to the Bay focusing on getting the sediment from the channels out onto adjacent tidal marshlands where they can actually have some good in terms of maintaining tidal habitats over time.

We created a map that you see here of the channels that drained to the Bay historically. Orange is channels that came out of watersheds and drained directly to the Bay. Blue is the channels that came out of watersheds and then connected to a tidal channel network with the Baylands. Green is the channels came out of watersheds and then spread out on the Baylands. Red is the channels that didn't actually make it to the Baylands that came out of watersheds and then petered out on these broad alluvial plains. This is what we had in the 1850's, and this slide shows what we have today. You will see that the markers on the map have changed completely, which creates a highly modified landscape; you don't have many of those natural connections anymore. As we know, most of our channels now come out of watersheds and flow through a levee or diked channels before getting out to the Bay. Another thing to point out is all these black Xs - they represent channels that were on the historical landscape but are now gone. They are either completely filled in or they have been piped underground. That represents about one third of the channels or about 100 channels that were historically on the landscape that are now gone. This analysis helped us to reach some high-level thoughts about management approaches for these channels at the Bay interface.

The next piece of this analysis is what we are calling the regional sediment analysis. We started out by looking at watershed sediment supply. First we discovered that, since the mid-50s, the average annual sediment yield coming out of all the watersheds that drain to the Bay is

about a million tons per year.A million tons of sediment would fill a box that is approximately 275 feet on each edge That's how much sediment would fit inside a box that size. We also found that of all that sediment, of all the one million tons coming out on average per year; the lion's share, about two-thirds of that sediment comes from just four watersheds. These are four of our biggest watersheds. The fact that two-thirds of all of that sediment comes from just four watersheds was a little surprising to us. Part of this analysis dealt with in-channel sediment removal. Since the late 50s we learned that approximately six million cubic yards of sediment has been taken from these flood control channels at the Bay interface.

This time, six million cubic yards would fit into a box that is about 550 feet on each edge. That is a very large box. We found that the sediment removal location and amounts for these major flood control channels varied not only by sediment supply but also by channel management approach. For instance, many of the flood control channels that are leveed down in their tidal reaches, that leveeing of these flood control channels in the tidal zone causes the tidal scour of those channels to go down which means sediment accumulation goes up. So that is a management approach that drives sediment accumulation.

Then we took the channel morphology work and the regional sediment work and we brought them together into multi-benefit management measures for the major flood control channels; now focusing on about 33 channels around the Bay. These measures aimed at getting sediment out of these channels and onto adjacent Baylands. For the 24 channels highlighted here we recommended connecting the creek directly back to the Baylands. This means that these channels are currently leveed but there is land adjacent to those levees that can be opened back up to tidal action. And there actually is an opportunity to get the sediment out of these channels and onto these adjacent lands. There are also several channels, six shown here, that are highly constrained by infrastructure next to the channel. Those levees are going to need to stay in place to protect life and property. For those channels, we know that they are going to continue to be dredged and we recommend sediment reuse for those channels. So we would be using that sediment that is going to be continued to be dredged locally to help build out tidal habitats as sea level continues to rise.

Now I am going to briefly touch upon the work that we did with the four implementation projects that Adrien mentioned earlier. Three implementation project sites we did an analysis where we compared historical landscape and historical habitats to contemporary conditions as a way of helping us identify multi-benefit management actions that can bring back some of those habitats but also meet the required level of flood management. For San Francisquito Creek we did what we call a landscape change analysis. We developed a map of the historical landscape that you see there on the bottom left; that's circa 1850. We developed a map of the contemporary landscape focusing on the habitat types. And then we did an analysis of how much change in acreage of different habitat types there has been. This helps us get to restoration targets. It helps us identify what habitats we can bring back that are going to benefit wildlife but also have some flood management benefits as well.

For Novato Creek we did a similar thing; constructed a map of the historical landscape, historical habitat types – but then we worked with a group of our partners and regional science experts and as a project team through a one-day workshop came up with a long-term management vision for Lower Novato Creek and that is what you see here. This vision has an array of management concepts; those are listed there on the right. The idea here is that these concepts enacted together would make this landscape more resilient to a rising sea level, would have habitat benefits and would also have flood management benefits as well.

The last implementation project was Lower Walnut Creek. We did the same thing as we did for Novato Creek. We looked at the historical landscape and habitat types. You see that on the left. You see contemporary landscape on the right. Through a one-day workshop we worked with our partner and regional science advisors to come up with a suite of management concepts that are multi-benefit and put those together into a vision. I want to point out that we are having a similar visioning workshop with Commissioner Showalter and her colleagues at Santa Clara Valley Water District in June focusing on the South Bay shoreline.

Ms. Goeden continued: When we got started on this project it actually came out of discussion with the Bay Area flood protection agencies at one of their meetings. We were talking about sediment issues and we landed on the fact that there are also regulatory issues. This is before we even thought about requesting a grant to examine this issue. One of the things we heard from the Bay Area flood protection agencies is that they were having a really hard time with the regulatory world. As we formed the grant request and the partnership between the organizations working on the grant BCDC got assigned the regulatory analysis.

Our sediment management team did a number of things. We looked at the whole suite of regulations and requirements that flood protection agencies had to go through in permitting maintenance and new-work projects, or capital projects. We did this analysis based on case studies. We went and looked at the Napa River Living River Project, which is the five-star flood protection project in the region. It's a pretty amazing project. We also looked at Novato Creek, their maintenance program, some of the work they have done over the last 25 years, and their permitting.

The San Francisquito Creek happened to be in permit process during this evaluation and it was particularly interesting because there were some challenges to that project getting through the regulatory process. We looked at Walnut Creek which was not yet in a regulatory process but was doing something very different than most of the flood protection agencies. They found that they could not do work for flood protection in their channel, Lower Walnut Creek, under the Corps' flood protection program because it required a trapezoidal channel and they had so many wildlife resources there. They just could not do what the Corps required through the national flood protection policies and meet the resource agency requirements. They actually went through a de-authorization project and went to Congress to get their project de-authorized, which meant they lost some federal funds, but it gave them the freedom to redesign Lower Walnut Creek.

So, within the toolbox, there are four case studies that are available. They are about 25 pages long that look at different issues for each project. That was part of the basis of our understanding what was happening in the regulatory world for flood protection projects. As you know, BCDC doesn't do a lot with flood protection because our jurisdiction is so small.

The next thing we did is we went through the laws and policies and tried to put together a document that made sense of the whole thing for a flood protection agency, the public, regulatory agencies and how it works and who to talk to et cetera. And what that document does is it tries to explain the chart you see on the screen which is the Bay Area regulatory process and who gives permits for what, in what order, and what's required of each. The regulatory analysis is about 85 pages long.

After the regulatory analysis we completed a second document, which is the findings of the regulatory analysis and how you might move forward to improve the process. The guidance document provides recommendations on how you might change the process for all. It talks about everything from how you could change permit applications, how you might do coordination differently, where coordination is done well and where it is not done so well; it even talks about what I call the human factor, which is where we get hung up sometimes.

It also provides actions in the short, medium and long term that can be undertaken. This document is 20 pages long and it has a chart like this that walks you through different types of improvements on the regulatory side, on the project side and on the short, medium and long term. It was very interesting and a great educational process for me and my team to go through this and really understand some of the challenges at a very deep level.

The next thing I am going to touch on is SediMatch, which is a slightly different piece of this pie. One of the other things that we have heard is that it would be really nice if there was a way that we could match the sediment needs with the sediment supply in an easier fashion. In the early days of this we actually set up a little matching workshop or two where we had people who we knew needed sediment and people who had sediment in the nearby area and had them talk and it kind of worked. We made a couple of matches but we realized we could not do that for every project. So SFEI and San Francisco Bay Joint Venture developed a web tool. It has a couple of different components, it is meant to be very simple to use.

There is a map component of the Bay Area, with dots and triangles, the dots are projects who want sediment and triangles are for projects that have sediment available. It is not well populated quite yet because it was just released in February. We need people now to help us populate it.

To populate it, there is a short form that asks a few questions about whether or not you have sand, mud, gravel et cetera; if it's cover, foundation material, or the quality of the sediment, who the contact information is, where the location of your site is and how much you have. And then you put it up there and it's kind of a want ad or a sediment match for folks. You can go online and download the data set for what's available. What we are doing now is

promoting it and requesting that people input wetland restoration projects, riparian restoration projects and their sediment neet and from the flood protection and dredging community the sediment that they have available.

Mr. Baudrimount continued: One additional piece of this project was the economic analysis. The idea was to try to understand what is the balance between the costs and the benefits when we try to implement multi-benefit project in a flood control channel. In order to do that we entered into a contract with an economic consultant that helped us design a model to make this assessment. We worked on two economic analysis case studies; Novato Creek and Lower Walnut Creek. Out of those two cases we built a tool that is available now on the toolbox for any flood control planner who wants to do this exercise to understand the costs and the benefits of doing such projects.

The tool is composed of a spreadsheet model where you can enter information from your specific sites starting with the project alternatives assumption. In this case it was the Flood Control 2.0 strategies. Then you add the benefits, which are the flood risks avoided, the recreational benefits, environmental benefits and on the other side you input the costs of these alternatives which are recreation and maintenance as well as capital costs for construction. You compare all of that with the business as usual, or as we like to call it Flood Control 1.0, and out of that we have a ratio which is either positive or negative, when the difference between the costs are higher than the benefits or the other way around. Of course we also design a guidebook to help anyone who wants to use this tool. And in the guidebook everything is explained in terms of methodology, what kind of data is needed, how to use the spreadsheet model and how to really build a strong benefit-cost analysis.

Lastly, the very last component of this project is the outreach component. I invite you to go to the toolbox website and you can explore the outreach components. There are eight podcasts that are explaining what the project is and highlighting some components of this project. With that I invite you to go to floodcontrol.sfei.org. This is the one single place where you can find all the information about this project. Thank you so much.

Commissioner Nelson commented: This transition from a less-natural to a more-natural approach to flood management is also happening right now in the Central Valley where the Central Valley Flood Board is writing a new flood plan; doing exactly the same thing – moving from traditional planning to a much more multi-benefit focus. And you ran through some of those benefits, flood protection, recreation, environmental; there are a bunch of others as well. I wanted to mention other aspects of those benefits. If you are a flood management agency and you are building a traditional concrete trapezoidal channel, you're kind of on your own. But if you are building one of these multi-benefit projects it's a lot easier to get permitted. You can show environmental benefits rather than impacts and you have partners interested in recreation and restoration who can help you implement and fund the thing. In addition to the

on-the-ground benefits, recreation, flood management and so forth; there are other procedural benefits that are really important in getting these really difficult permit processes through the system to actually being implemented on the ground.

An analysis that I haven't seen for the Bay Area, but the Central Valley Flood Plan is trying to start doing what we are doing with sea level rise, but looking at climate change impacts as well in the Central Valley. They are looking at how peak flood flows are expected to increase on Central Valley rivers because of climate change. That's primarily the change from a snow-driven system to a more rain-driven system. And on the San Joaquin side of the system they are projecting increases of flood flows of almost 70 percent compared to where we are now. We have a lot of flooding with current flood flows. The good news for us; that change is largely driven by the change from snow to a more rain-driven system. One of the other impacts of climate change is more intense rainfall events. We are going to see some changes in our local stream hydrology as well. I haven't seen that so that's my question; whether you folks have looked at the hydrology of these streams and how they are likely to change because of those climate impacts. Mr. Dusterhoff replied: The answer is that we are going to the next phase. Flood Control 2.0 was funded primarily by the Water Quality Improvement Fund from the EPA. We just received the team including SFEI, BCDC, San Francisco Estuary Partnership and other partners just received a next water quality improvement fund. The funding just came through at the beginning of the year to continue this work and do more regional analyses on what we think is going to be happening with watershed sediment and addressing that exact question of what we think is going to be happening with climate.

My understanding in terms of the climate projections for the Bay Area is that they are a little bit less certain than the Sierra. We know that mean annual precipitation in the Bay Area will probably be about the same but how that comes is going to change. It could still be about 30 inches on average per year but we could get many years with nothing and then a few years with a lot.

Commissioner Gorin spoke: I want to echo those comments because that's exactly what Sonoma County is seeing. Our 30-year flood events are now like every five to seven years. We were significantly hit hard this past winter. We are going through the really painful discussions with our neighborhoods that the Water Agency does not have the authority to go in there and maintain and restore let alone having the funding necessary to naturalize that may provide some of the solutions that we are going to need over the next decade or two. They are not happy when we tell them that especially as the creeks have rampaged through their yards removing all topsoil and inundating roads and threatening the very viability of roads. We are doing the same thing not directly connected to Bay level rise. We've identified cleaning out the watersheds for lack of a better of a better term on approaching this in all ways, shapes and forms.

I am going to be looking at what you're doing and I took notes and just sent an email to folks of the work that you have been doing on Novato Creek because the work that we are doing on Highway 37 will definitely be informed by the work that you have done and the regulatory analysis that you have done on Novato Creek; a cheaper solution for Highway 37 is a raised causeway and it may not work with the wetlands restoration that you have potentially identified as an adaptation strategy. Thank you for all that you are doing. I'm going to crib your information and refer a lot of people to you.

Mr. Dusterhoff replied: Please do. I am a Petaluma resident so I am also very concerned about what's going on in Sonoma County as well. The other thing that is going on in Sonoma County related to a similar approach to what we did for Novato is the work that SFEI is going to be doing with Sonoma County Water Agency and the Laguna Foundation in the Laguna to do this exact same process; come up with a vision that is multi-benefit, stakeholders, land owners, regulators – everybody in the room getting these concepts together. Getting a plan then will be the blueprint for how that area will be managed in a multi-benefit way for the coming decades.

Commissioner McGrath commented: This is so cool. (Laughter) I wanted to say, thank you and I wanted to single out two people who aren't here, Luisa Valiela and Sam Ziegler who had the vision to fund this. Sam, of course, is one of us.

This is so cool. Commissioner Showalter agreed: This is cool. I'm having a great time working on it and, in fact, I am retiring at the end of this week and one of the things that I kept trying to push was the date of this workshop so it was before my retirement date but they decided I could come anyway even if I was retired. One of the things I want to say about this that has really been important for us is; at water districts we sit around and dream about our systems. What if we could do this or what if we could do that? And particularly with some of the streams that go into the salt ponds you look at them and they make these very unnatural configurations because when they built the salt factories they didn't really care about the stream channels, they just diked them off. We have some with 90 degree turns. For years we have been looking at these two creeks, in particular, San Tomas and Calabasas and thinking, wow, why can't we just punch it through into the salt ponds? And the reason we haven't has been largely that it's just a permitting nightmare. This process is really wonderful for us because it brings all the major permitting agencies together in a room along with some scientists who are subject-matter experts and they are presented with a tremendous amount of homework goes into getting these workshops together. So they are presented with all this information at once that they can share and absorb and ask questions about at the same time.

The result is incredibly efficient. I've been working with a young engineer from Capital and he keeps saying, you know this is the first time the regulators smile when they talk to me. (Laughter) I want to thank you for the efficiency that this produces and for helping us to dream a little bit.

Mr. Dusterhoff replied: This time, for the first time at our seminar, we are going to have an international contingent for the workshops. That is going to be exciting. Commissioner Showalter added: We are having modelers from the Netherlands who are doing this sediment modeling for the program.

Chair Wasserman continued: Thank you very much for the presentation and the work and with that I would accept a motion to adjourn.

12. **Adjournment.** Upon motion by Commissioner Gorin, seconded by Commissioner Nelson, the Commission meeting was adjourned at 3:49 p.m.