

San Francisco Bay Conservation and Development Commission

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February 26, 2016

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 February 18, 2016 Commission Meeting

1. **Call to Order.** The meeting was called to order by Chair Wasserman, at the Ferry Building, Port of San Francisco Board Room, Second Floor, San Francisco, California at 1:04 p.m.

2. **Roll Call.** Present were: Chair Wasserman, Vice Chair Halsted and Commissioners Addiego (departed at 3:34), Bates (arrived at 1:18, departed at 3:32), Chan (represented by Alternate Gilmore-departed at 3:34), DeLaRosa (departed at 3:45), Gibbs (represented by Alternate Arce - arrived at 2:40, departed at 3:52), Gorin (departed at 3:37), Hicks (represented by Alternate Galactos – departed at 4:03), Kim (arrived at 1:14, departed at 3:25), McGrath, Nelson, Pine (departed at 4:08), Randolph (departed at 4:05), Sartipi (represented by Alternate McElhinney), Sears (departed at 4:06), Spering (represented by Alternate Vasquez), Wagenknecht (departed at 3:29), Ziegler (represented by Alternate Brush – departed at 4:00) and Zwissler (departed at 4:10).

Chair Wasserman announced that a quorum was present

Not present were Commissioners: Association of Bay Area Governments (Techel), Santa Clara County (Cortese), Department of Finance (Finn), Contra Costa County (Gioia), State Lands Commission (Lucchesi).

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

There were no public speakers present to comment.

Chair Wasserman moved to Approval of the Minutes.

4. **Approval of Minutes of the February 4, 2016 Meeting.** Chair Wasserman asked for a motion and a second to adopt the minutes of February 4, 2016.

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

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BCDC MINUTES
February 18, 2016

VOTE: The motion carried with a vote of 15-0-0 with Commissioners Addiego, Gilmore, DeLaRosa, Gorin, McGrath, Nelson, Pine, Randolph, McElhinney, Sears, Vasquez, Wagenknecht, Brush and Vice Chair Halsted and Chair Wasserman voting, "YES", no "NO", votes and Commissioners Galacatos and Zwissler abstaining.

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

a. **New Business.** We have the opportunity for anyone to propose new business for our next meeting. (The Chair received no comment.) Chair Wasserman passed out chocolates in celebration of Valentine's Day. This was well received.

b. **Bay Fill Policies Working Group Update.** Chair Wasserman asked Commissioner Nelson to provide a brief report on the actions of the Bay Fill Policies Working Group. Commission Nelson addressed the Commission: We had two very interesting presentations today. The first one was by the Fish and Wildlife Service regarding the Sonoma Creek Restoration Project that we permitted a year or so ago, construction of which has now been completed. We also had a presentation by the Sierra Club about a possible project at Hunter's Point. Both of these projects would be using fill in order to restore habitat. And we had a really interesting discussion about a number of key questions that the staff had identified that are probably among the most important questions we need to wrestle with as we think about whether we need to make changes to our existing plans and policies and potentially the McAteer-Petris Act in order to respond to the challenge of sea level rise. I don't think we answered all of those tough questions, but it was a terrific discussion.

c. **Next BCDC Meeting.** Our next BCDC meeting will be on March 3rd. It will be at the Metro Center on the other side of the Bay. We will have a Commissioner's Workshop, our next one in the series on rising sea level. This one will focus primarily on regional planning and coordination. The format will be similar to the last one where we have some presentations and then break out into smaller groups to have some discussions and we expect about three or four specific projects so that we can root our discussions about regional coordination and what we need to do to improve our decision making amongst our federal, state, regional and many local agencies. And then we will have a specific discussion on how people think we may improve those and what actions we may need to take in terms of coordination that we do not have available today.

The Supreme Court news with the passing of Justice Scalia has knocked climate change off the newspapers in the past week and a half. Rest assured, climate change is continuing even though it is not being reported daily in our newspapers.

We did get in our packets a New York Times article about measures they are considering in Hoboken. It is worth reading in particular as we contemplate our workshop on the 3rd because it illustrates some of the conflicting interests in protection from floods and preservation of things as they are and preservation of views and other issues which some of the adaptations that will be necessary may interfere with. There is not a resolution in Hoboken yet. It is a good illustration of some of the conflicts we need to be aware of and thinking about how we are going to try and resolve.

d. **Ex-Parte Communications.** That completes my report. Is there anybody who wishes to make any ex-parte disclosure here? Again, you can do that on the site. (No one reported ex-parte communications to Chair Wasserman) Chair Wasserman recognized Executive Director Goldzband.

6. **Report of the Executive Director.** Executive Director Goldzband reported the following:

Fortunately for those of us who tend toward obsessive-compulsive behavior, you can always count on certain events. For example, on any given evening at least three different episodes of “Law and Order” are broadcast simultaneously on cable television (laughter). For the 57th time in my life, spring training for major league baseball teams has started. And, yes, your FPPC Financial Disclosure Form 700s are due again on April 1st. Unlike Chet Atkins, who described his long and illustrious career best by saying, “Once you become predictable you become boring,” please do be predictable and bore Reggie Abad, Reggie the Enforcer, by completing your Form 700 on time. I want to congratulate Vice Chair Halsted for being the first BCDC Commissioner to turn hers in.

I have nothing to report yet on our search for either a new budget chief or a supplemental accountant. However, we have a discussion scheduled with the Department of Finance to determine whether we can use its consulting services to teach us best practices in budget tracking and grants management. There will be more information to come later.

You will remember that our Adapting to Rising Tides team started going on the road to each of our nine counties to discuss with local planners our staff’s experience in analyzing vulnerabilities and developing resilience strategies with a wide variety of communities. Next Thursday, the 25th, the ART team is holding a workshop in American Canyon in Napa County. We want to thank Supervisor Wagenknecht and Mayor Techel for all of their support and we look forward to coming to your county soon.

I now would like Commissioner Sean Randolph to give us a brief introduction to a conference that will occur in early April in San Francisco, called City Age with which he has become involved.

Commissioner Randolph addressed the Commission: It might be of interest to attendees to know about this conference. It is called, City Age. It has been going on for five years. It began in Vancouver and it is focused on urban development strategies, sustainable development, and green city development. They cover a variety of topics from infrastructure to workforce as well as many other issues. A number of mayors will be there. Many civic officials will attend and a lot of sustainability officers will be there. When the organizers came by last month to talk about the agenda and what kind of participation they might expect here, we did get on the topic of climate adaptation and the work with BCDC and how various cities around the region are planning for climate change. Our work is very much on their scope. If anybody would like to know more about the conference and the agenda and how to register, let Larry or me know and we can give you the contact information. It will take place April 5th and 6th in San Francisco. It is going to be at the City Club.

Executive Director Goldzband continued his report: I am sure that each of you has read about the decision by Commissioners and Alternates who sit on the California Coastal Commission to dismiss Charles Lester their Executive Director. One of the consequences of that decision is that several members of the State Legislature have introduced legislation that would somehow change the reporting requirements imposed on individuals and organizations that lobby Coastal Commissioners and their staff. As of yesterday morning, staff at the Natural Resources Agency had not seen the proposal and do not know whether the Legislature will want to expand such requirements to other state boards and commissions. As a result of a discussion that I had with the Agency's Deputy Secretary for Legislation, we shall be kept apprised of the Agency's analysis. We have included a story from the Los Angeles Times about the introduction of the bill.

Now, recognizing that the Academy Awards will be handed out in 10 days, I want to give you all a preview of some coming attractions here at BCDC. First, we shall reconstitute the Enforcement Committee because at least one case and likely several others will need to be heard later this winter or in the spring. Thankfully in my experience with the Enforcement Committee its members model Gregory Peck as Atticus Finch more than Frederic March as Mathew Harrison Brady in, "Inherit the Wind." Second, Steve Goldbeck, Sharon Louie, and I toured the new regional headquarters building at 375 Beale last week – it will be a fine structure in which to house BCDC staff should the Department of Finance allow us to move there. However, when that happens next January, we can promise you that Sharon and Anna's expertise will more than outclass Woody and Buzz Lightyear encountered in "Toy Story 3." Finally, you may have heard that the City and County of San Francisco is partnering with BCDC, the San Francisco Estuary Institute and several other organizations to create a program called "Resiliency by Design," a Bay Area-wide competition based on the successful "Rebuild by Design" effort that took place after Hurricane Sandy hit New York City. Resiliency by Design, however, is a competition to create practical multi-benefit solutions to rising sea level before the Bay Area is inundated with water due to climate change or a series of whopper storms. We'll have the project members give you a briefing within a couple months and we hope that a successful project will result in a regional "Plan For All Seasons."

Finally, speaking of predictable behavior, BCDC has instituted its new schedule as Chair Wasserman noted. The first Commission meeting in March (that would be our next meeting) will adjourn early to commence our second public workshop on rising sea level. The second meeting in March will be a regular business meeting and April will follow that same pattern.

That completes my report Chair Wasserman and I am happy to answer any questions you may have.

Chair Wasserman asked: Any questions for the Executive Director?

Commissioner Randolph stated: One more factoid, the City Age Conference web address is, "City Age.org."

Chair Wasserman commented: One of the difficulties we have in recruiting is that the state salary system is woefully inadequate. There are positions that under the state rules pay less than some cities' mandated minimum wage ordinance, including the City of San Francisco. We are working on plans and communications to address this. We will report to you on what is going on.

Executive Director Goldzband added: We are very happy to be working with the Coastal Commission and the Coastal Conservancy on this issue. They experience the same difficulties that we do in hiring staff. We are working together as a group to try to remedy that.

Chair Wasserman commented: As the Coastal Commission has gotten unwanted publicity I focused on how many staff members they have. I think it is about 160. We are at about 40. We represent one-third of the coastline in California and there is barely an inch of our coastline in which there is not activity. There are many miles of the California coastline outside our jurisdiction in which there is no activity requiring a regulatory or planning body. That is also an inequity we are going to look at.

7. Consideration of Administrative Matters. This brings us to Item 7. There were no Administrative Matters so there is nothing for us to do.

8. Public Hearing and Possible Vote on an Application by the San Francisquito Joint Powers Authority to Construct the San Francisquito Creek Flood Control and Ecosystem Restoration Project; BCDC Permit Application No. 2013.007.00. Chair Wasserman announced: Item 8 is our consideration for flood control ecosystem restoration on San Francisquito Creek. Anniken Lydon will make the staff presentation.

Sediment Analyst Anniken Lydon presented the following: On February 5, 2016 you were mailed a summary of the application to construct the San Francisquito Creek Flood Protection and Ecosystem Restoration Project located within and adjacent to the San Francisquito Creek and Faber Tract Marshes on the border of San Mateo and Santa Clara Counties.

One of the main project goals is to support and protect properties and infrastructure in the communities adjacent to the Creek from flood damage. The project would involve realignment of the San Francisquito Creek Southern Levee into the adjacent golf course, which would widen the Creek. The project also includes repair of existing levees and restoration of tidal marsh habitat within the Creek and Faber Tract Marsh. The project is partially within the Commission's Bay and 100-foot shoreline band jurisdiction.

The project involves the net placement of approximately 24,000 square feet of new Bay fill of which approximately 2,060 square feet is for a 202-foot long and 10-foot wide new public access boardwalk spanning the newly widened creek.

A majority of the fill is for levee stabilization and minor amounts of fill would be required for habitat features including high tide refugia islands in the Marsh and refuge for fish migrating up the Creek.

The project is proposing approximately 209,120 square feet of total public access of which approximately 47,500 square feet would be new public access. A portion of the public access would be within the Commission's jurisdiction but most of the proposed public access and improvements will be constructed upstream and outside of the Commission's jurisdiction. Additionally, the project would expand the Commission's Bay jurisdiction by approximately 25,535 square feet through widening of the tidal portion of the Creek.

The project would impact approximately 2.19 acres of tidal marsh habitats within the Commission's jurisdiction. The applicant is proposing to create and restore tidal marsh and transition zone habitats within San Francisquito Creek and to restore tidal marsh transition zone and high-tide refuge habitats within and around the adjacent Faber Tract Marsh. In total, the applicant would provide approximately 9.44 acres of enhanced habitats to compensate for the impacts of the project within the Commission's jurisdiction.

The applicant worked with U.S. Fish and Wildlife Service, NOAA Fisheries, Cal Fish and Wildlife and the Regional Water Quality Control Board and Commission staff to develop these habitat enhancements within and near the site to improve habitat for listed species.

The public access portion of the project includes improvements to existing trails such as asphalt paving, aggregate base, interpretive signage, a new boardwalk with two overlooks and other public access amenities that would improve the public's enjoyment of the trails and views of the Bay.

In addition, the project is including further improvements to public access outside the Commission's jurisdiction including creating a new public access point and short-trail connection to East Bay Shore Road as well as formalizing informal trail access points and providing other public access enhancements.

The Commission should note that the Bay Trail at the Creek crossing would be temporarily impacted during construction closures but would be fully restored and enhanced with the construction of the new boardwalk and two overlook areas proposed.

I would like to point out a few items that have changed between the staff summary and the staff recommendation. First, the estimates of fill provided in Table 1 of the staff summary were rounded up to the nearest tens in the staff recommendation and corresponding values were updated elsewhere in the staff recommendation.

Second, the authorization for construction of an eight-foot high predator exclusion fence across the north levee in the Commission's 100-foot shoreline band jurisdiction and near Friendship Bridge was changed in the staff recommendation to remove the height of the fence from the authorization. Staff believes that an eight-foot fence may block views and be excessive for predator exclusion fencing. The applicant notified staff that the eight-foot high fence was negotiated with U.S. Fish and Wildlife Service to exclude red foxes from the adjacent Faber Tract Marsh.

Additionally, the applicant has agreed to continue working with staff and the U.S. Fish and Wildlife Service to ensure that the fence will be as low as possible to maximize views of the Bay but as high as necessary to exclude predators from the Marsh. Special Condition II.G.3 in the staff recommendation reflects this change.

Third, staff was informed that a small section of approximately 1,450 linear feet of the trail located near Daphne Way on the north levee outside of the Commission's jurisdiction will remain as the existing earthen trail rather than being upgraded with an aggregate base as the rest of the trail along the levee.

Fourth, staff was also informed that the applicant is proposing two overlook areas on the new public access boardwalk to enhance the public access rather than only one overlook as was written in the authorization section of the staff summary.

Lastly, Exhibit D, which is the public access exhibit in the staff recommendation, has been updated to show the existing trail to be removed and the new exhibit was provided to you in your Commissioner packets.

Here to present the details of the project is Len Materman, Executive Director of the San Francisquito Creek Joint Powers Authority.

Mr. Materman addressed the Commission: I wanted to thank all the staff for a very substantial effort over the last couple of months to get to this point. We have been evaluating the impacts of this project for many years.

I will give a summary of this project to the Commission. The area in yellow on the screen is the watershed and floodplain of San Francisquito Creek. The green line on the screen is San Francisquito Creek and it is also the county line between San Mateo County and Santa Clara County. The area for this project is at the very end of the Creek watershed and adjacent to the Bay.

The JPA was formed in 1999. The Santa Clara Valley Water District, the cities of Palo Alto, Menlo Park and East Palo Alto and San Mateo County Flood Control District formed the JPA.

This slide shows some of the different floodplains that we are working with. Right now there is already a project along Highway 101 and Caltrans is managing and paying for that project. It is being built to ART specifications. It will increase the Creek flow substantially to a section of the highway that floods regularly.

The project that we are talking about today is the two yellow lines on the screen between Highway 101 and very close to the Bay. When that project is complete the area around it, the Creek floodplain will be eliminated. The Bay floodplain will remain.

We have other projects in the works at the JPA that are in various stages of planning design and environmental review. The idea is that when those projects are done, all we have is the Bay floodplain. We have another project that will come back to BCDC in a few years that is along the Bay shoreline from Redwood City to Mountain View.

There is real flooding in this community. In 1998 the flood of record in Palo Alto damaged 1,700 properties in both counties. In 2012 the most recent flood damaged properties in East Palo Alto and caused a significant amount of erosion in Menlo Park.

There was congressional authorization for this project in 1941 that directed the Corps of Engineers to solve the flooding problem. There was a stakeholder process in the 90s to draft a plan for flood protection and ecosystem restoration. In 1998 was the flood of record and a year later the JPA was formed. We were formed primarily to look at solving the flood problem. There have been many floods between 1941 and 1998 and the communities realized they could not solve the problem alone for a creek that divides cities and counties.

In 2009 we looked at nine alternatives and they were evaluated against 14 criteria to develop a preferred alternative, which is what I will describe today. The strategy for that alternative is to widen the Creek channel, turn golf course land into marsh land and build up levees and flood walls and then connect the Creek to the marsh that is adjacent to it in the north.

The design and EIR process was started in 2010. The EIR was certified in 2012. The JPA submitted regulatory permits in March of 2013. In 2014 the JPA and its five member agencies signed a funding agreement to fund construction of the project. And here we are in 2016 hoping to start construction a few months from now.

This part of the Bay Area is one of transitions. It has transitioned from fresh water to salt water. It has transitions in landforms, transitions in species, certainly transitions in jurisdictions and with that, transitions in socio-economic status depending on what side of the Creek you live on. We like to think that the project respects and enhances those transitions.

There have been homes that have gone into this area during the last seven years. There has also been important infrastructure and regional services for this part of the Bay Area that have been established.

To the north of the Creek is the Faber Marsh and there are two endangered species that call that marsh home as well as the steelhead, that use the Creek channel. These are all constraints on a project to provide flood protection.

The City of Palo Alto manages the golf course and they were willing to give up land, about 12 acres for this project, to widen the channel but they wanted it to be maintained as a golf course. They have a separate project to improve it.

Currently, between the Palo Alto side and the East Palo Alto side there are homes below sea level and rooflines below levee tops. The current barrier on the East Palo Alto side has overtopping problems and seepage problems. In 2012 water seeped through the levee and went into homes. It is not an engineered levee. It is not a levee that any government agency recognizes as a suitable levee. Storm drainage as well as Creek flooding is an issue for the homes in this area.

The overarching goal of the project is to protect previously flooded people and property from the Bay to Highway 101 against the maximum possible Creek flow during a high tide with over three feet of sea level rise. A sea level rise assumption of between two and a half and three feet has always been built into this project from its planning stages. It will be in the construction as well.

As I stated, some of the current golf course land will be converted into a marsh that will serve as a transitional marsh plain that is elevated from the middle to the levee slopes to create transition zones for new habitat.

We will also excavate the sediment in the Creek channel. The built up sediment in this area provides very little habitat for the important species of the area. We are degrading the levee close to the Bay. We are enhancing and creating a transition zone on the Marsh side of the levee to protect the Marsh and to protect the species. There are also a lot of public access benefits inherent in this project.

The project increases Bay surface area and adds acreage to the Bay. It increases and enhances habitat including marsh and high-tide refugia areas. It improves the shoreline resilience because of the transition zone and also because of the attention to sea level rise.

Our assumption on sea level rise is that this project will last 50 years. We believe that the three feet is enough to deal with the issue for the next 50 years. There is also free board in case there is a problem. There is minimum fill in the project to achieve the public benefits of flood protection, ecosystem and recreational enhancements. There is no feasible upstream alternative although we are looking at upstream alternatives working with Stanford University on those to address the flood issue downstream.

This project improves water quality because it keeps storm water that now goes through homes and over streets into businesses; it keeps floodwaters out of the developed areas. The impacts of the project are fully mitigated.

The Santa Clara Valley Water District did a lot of the work related to the technical work in this project and produced these great images. They are an important member of the JPA.

There will be a net increase of 7.7 acres of marsh. There is fill needed in the marsh to create high-tide islands in the area that is labeled, Outer Faber Marsh. That has been negotiated with the U.S. Fish and Wildlife Service. We will also enhance berms with transition zones to protect endangered species.

There will be a net increase of 1.74 acres of marsh within the creek in BCDC jurisdiction. It is a relatively small number because BCDC jurisdiction stops outside of a large portion of marsh creation outside of your jurisdiction.

The fill is needed to protect and raise levees for fluvial creek flow and sea level rise. The fill is also needed to create the marsh transition zones within the channel and to place in-stream fish refuge is also a requirement of this project put on this project by the National Marine Fisheries Service.

We will also protect bridge footings and construct floodwalls. The floodwall portion of the project is farther upstream. We could not use levees there because there is not room to take advantage like there is using the golf course land. The total project provides a net increase of over 15 acres of marsh in the Creek.

There will be two miles of improved trails, 1.9 miles to be exact above future, maximum flow and high-tide with three feet of sea level rise. Those trails that are built will be maintainable even with three feet of sea level rise.

There will be a new boardwalk and landings over the Creek with marsh and Bay views. There will also be new interpretive directional signage. We will also have new and improved access points and maximum access within the habitat limitations. Currently the trail in place is uninviting because of multiple fencing and barbed wire and it is unsafe. This will all change as a result of the project to give people access to the floodwall area, the pathway and the levee top.

The focal point of this project is the Creek channel and the bend as it heads on towards the Bay. The Marsh is north of the Creek. Friendship Bridge, which exists now, will be over the low-flow channel in the Creek.

The new landings going in will have benches and interpretive information for people that want to stop. They will also have an area to park your bike. We are very excited about the opportunity to enhance the public experience and talk about how this particular location is a transition between communities, between habitats, between landforms, between water types; it is a great spot to talk to people about what is going on in the Bay and in the intersection between fresh water and salt water.

Thank you very much for having us.

Chair Wasserman announced: We will open the public hearing. Do we have speakers? (No speakers came forward) We will close the public hearing with a motion.

MOTION: Commissioner Vasquez moved to close the public hearing, seconded by Commissioner Gorin.

VOTE: The motion carried with a vote of 17-0-0 with Commissioners Addiego, Bates, Gilmore, DeLaRosa, Gorin, Kim, McGrath, Nelson, Pine, Randolph, McElhinney, Sears, Vasquez, Wagenknecht, Zwissler, Vice Chair Halsted and Chair Wasserman voting "YES", no "NO", votes and no abstentions.

Chair Wasserman continued: Questions from the Commissioners?

Commissioner McGrath stated: I have a couple of questions on the hydrology and the status. There are three elements that are going to affect the flood control. The first one is the modifications to the Searsville Dam and the changes in Caltrans, which was left unresolved in the staff report. It said, there would be a significant increase in flow. Apparently the freeway is now flooding and this will eliminate that flooding and the water will be in the channel at increased velocity. Is that correct?

Mr. Materman answered: When the Caltrans project is finished the capacity of the channel at that location will be significantly increased. Upstream of here there is still bridges and bottlenecks in the channel that will constrain the flow from reaching this area. Yes.

Commissioner McGrath pressed for more detail: In the hydrology work that was done for this you took into account and your design takes into account the assumptions that the bridge is going to be modified and the Searsville Dam is going to be removed and you are responding to those?

Mr. Materman responded: The assumption of this project in terms of its design criteria is that it can handle any flow that can reach the location because of upstream constraints that are there now or upstream constraints that could be removed in the future.

Commissioner McGrath had a second question: The second question had to do with sedimentation. Typically in a lot of the small streams around San Francisco Bay the channels fill in because of reduced tidal prism. There is some indication in this, particularly in the staff report, that that has occurred. You made it clear that there is going to be an increase of a certain amount but you did not distinguish between marsh increase and tidal prism. Could you walk me through how much the tidal prism is being increased here and whether or not that will be sufficient based on your work to make sure that this channel does not again fill up with sediment?

Mr. Materman asked: Could you re-characterize your question more specifically?

Commissioner McGrath clarified: Well again, this channel historically has filled with sediment, which has undermined the hydraulic capacity of it. There is some increase in tidal prism but it is not clear how much that is and whether or not it is sufficient to prevent that from happening again. I just want to be walked through how much of an increase there is. A wider channel that does not have the tidal prism to keep the sediment out of it can still fill up with sediment pretty quickly. A bigger channel, which is connected to the Marsh and has more Bay water moving in and out, will keep itself clear. It is not the stream that defines the dimensions of the channel; it is the tidal action.

Mr. Kevin Murray, Project Manager with the JPA commented: The geometry of the channel is going to be changed so that it is no longer a flat bottom. We expect that those sediments will be purged a lot more readily than they are currently.

Commissioner McGrath replied: They will be purged because there is more water moving in and out or they will be purged because they are flatter?

Mr. Murray responded: There will be an established low-flow channel so that as the water level recedes those sediments will be harbored into faster moving water so that there is more energy to purge the sediments.

Commissioner McGrath revisited the tidal prism aspect of the project: So the tidal prism is expressed in the low-flow channel rather than across the whole of the flow of the channel?

Mr. Murray replied: Essentially, that is correct, yes.

Chair Wasserman had a question pertaining to the staff report: If I heard it correctly there is still some discussion over the size of the fence. How is that going to get resolved?

Ms. Lydon replied: We put a condition in the staff recommendation that the applicants will continue to work with U.S. Fish and Wildlife Service and staff to determine the size of the fence. My understanding is that U.S. Fish and Wildlife Service might have the height of the fence as a requirement of their BO. Did we figure out whether it is a requirement or not?

Mr. Murray replied: Eight feet is stated in the Biological Opinion but we believe we can continue to work with Fish and Wildlife and refuge staff to find a happy medium.

Commissioner Zwissler commented: This is a relatively large project and we keep talking about the ancillary consequences of these things. I am curious whether or not there was any effort made to understand, once this is done what happens to the surrounding areas adjacent to this project? Does it in any way increase potential flooding in other areas around the area? Did you even look at that?

Mr. Materman replied: We have looked at this. The JPA in partnership with the cities of East Palo Alto, Menlo Park and Palo Alto have a separate project that connects to the end points of this project in terms of Bay flooding. This project in design criteria alone is connected to the Caltrans Project which opens up 101 and work upstream to either detain water upstream or open bridges and some bottlenecks in the channel. This is why we have a JPA; so that these entities work together and there is not one city saying, well I'm worried about the long-term effects of this Bay to Highway 101 Project on my community. There is Caltrans and there is this project and there is work upstream and then there is another project from Redwood City to Mountain View, which looks at the shoreline.

Commissioner Gilmore asked for clarifications: That kind of confused me. There are a lot of projects in this area. What is the phasing? My question is, "if your project is first out of the gate and all of these other projects are being stacked up ready to go; assuming your project gets built first, what is the effect if none of these other projects are online?"

Mr. Materman answered: Our project does not increase the risk for anybody else. There is no side effect of this project that is detrimental to the levees around it or to the communities around it. It is self-contained as a stand-alone project.

If the other projects upstream or along the shoreline never get built, which is a possibility, this project as a stand-alone will provide the benefits that we have described without effect to the neighbors.

Commissioner Gilmore added: Just so I am clear, the benefits that this particular project would provide as on that previous screen where you had the red areas, that will be removed and so you are just talking about the Bay action?

Mr. Materman responded: In terms of flood protection outside of the Marsh and the recreational areas, just in speaking of flood protection the areas that are turning green are the areas that are benefitted. It is important to say, there are two floodplains adjacent to this project; one is the Creek floodplain and the other is the Bay floodplain. In terms of a risk, the

Creek at the moment creates a substantially greater amount of risk for these communities, especially East Palo Alto than the Bay does. That is another reason that we are not terribly concerned that this project starts in 2016 and is finished at the end of 2017 or early 2018 that there is a lapse of five to ten years between that and the Bay. We need to get to the Bay work and we are committed to it. Sea level rise is imbedded on our shoreline as well as the Creek work; it is part of the calculation of our design. We consider life and property risk to be very substantial from the Creek and much less so from the Bay.

Chair Wasserman asked: In addition to the five agencies that make up the JPA, how many agencies needed to approve this project?

Mr. Materman replied: In terms of regulatory permits, the permits that we have received are Regional Water Control Board, the California Department of Fish and Wildlife, a biological opinion from the U.S. Fish and Wildlife Service, a biological opinion from the National Marine Fisheries Service, the Corps of Engineers has completed their analysis of all the alternatives and said that this project is the least environmentally damaging practicable alternative and there is BCDC. That is six state or federal regulatory agencies. We are 36 months into the permitting process.

Chair Wasserman summarized: So six plus the five members of the JPA. This is a terrific project. This is often the first case example of adaptation that we can use as a model. It is going to be a poster child both positive and negative. The positives are all of what you have described. I appreciate that the initiation came from the Creek not from the Bay. However, the problems are fundamentally the same.

Your project is part of the hope. Your timeline is part of the fear. It started in 1941 with the Congress recognizing something needed to be done. We cannot wait 75 years. In 75 years we will be underwater here.

One of the things we need to learn from this is what worked well, what did not work well, how we can improve those processes; and I suspect this will be one of the topics discussed on March 3rd.

The other reason that this demonstrates hope is because you had the five agencies committed to it and recognizing they needed to do something and forming an entity that worked. And that is also a piece of the lesson that we are going to have to look at.

Kudos to you for all of it.

Commissioner Pine shared a perspective: I had the privilege of serving on the San Francisquito Creek Joint Powers Authority as a representative from San Mateo County. I have been involved with this project on a monthly basis for two and a half years or so.

It has been an incredible learning experience to see how complex these projects are and how you have to fight inch by inch on a whole range of issues from funding to permitting to governance to working with your stakeholders. It has been eye opening just to appreciate how demanding it is to get something like this done even against the backdrop of the fact that there was catastrophic flooding in this 1998. The urgency of this project is very real.

We were very nervous going into this El Nino season because the earliest we could commence construction is this summer. We may have dodged a bullet here.

There are a lot of lessons here about how complex and how arduous it can be to get important projects completed.

The San Francisquito Creek is actually the creek that divides Santa Clara County from San Mateo. It is the only creek on the peninsula that is not in a culvert. The conventional reason as to why it was never culverted is because it divided two counties. And of course, counties cannot work together so they just left it (laughter).

It is a remarkable creek. We have focused today on the Bay to 101 stretch but the upstream projects are similarly complicated and there is even another layer of complexity with a 100-year old dam that Stanford constructed and is now completely filled with sediment. There are many, many moving parts.

What makes this project particularly unique is, on one hand, there is this public safety element. When you walk on the levee and look down on these homes it is really frightening to look at the risks that these residents have had to bear. On the other hand, the project is so exciting because it is integrated and has solved so many of the issues that we talk about constantly. It is a plan for sea level rise from the beginning. It has found a way to get five jurisdictions to work together and reach a consensus on design and funding alternatives.

On the funding front, again just a little bit of history here, for many years the JPA pursued federal funding and wanted to see if they could get something done through the Corps. Ultimately the decision was made that this was taking too long and a substantial change in direction was made. All the funding was cobbled together without the Corps.

When you think of the severe flooding that happened in 1998 and realize we are now in 2016; you may wonder why did it take so long? Two things had to be straightened out.

First, it took a while for the JPA to figure out how to work together. But also, a lot of years were spent with the hope that there would be federal money. In hindsight this would have been done earlier if the decision is made, just let's not go there. We funded this without federal funds.

To conclude, I cannot say enough about the talent of this small team here that has pulled this off. It is really a fun group to work with because the JPA is like a little startup government (laughter). There are only three and a half people on the JPA. They have a lot of assistants from the Santa Clara Valley Water District who none of this could have happened without their involvement and their substantial funding contribution. This little agency of three and a half people has had to quarterback this whole maze of complexity.

Commissioner Nelson had a question pertaining to adaptation: I have a question about sea level rise adaptation planning. I wanted to make sure that I heard you correctly that the project was designed for three feet of sea level rise and still leaving the standard amount of freeboard above that additional three feet. Did I hear that correctly?

Mr. Materman replied: The project is designed for maximum creek flow simultaneous with three feet of sea level rise. Currently, that serves as more than enough freeboard to get people out of the flood insurance program for FEMA. At the time that sea level rise occurs in order to maintain that freeboard we can add to the Trail and we have already been asked to start planning for that. The project's provision of sea level rise, you could say that for the next 30 years that is our freeboard and when sea level rise occurs on the lip of the Trail we would ask for a permit to add two feet as some kind of a curb.

Commissioner Nelson continued: That was my question; whether the levees and the floodwalls have been designed so that they can be raised if necessary.

Mr. Materman replied: Absolutely.

Chair Wasserman had a clarifying question: Your maximum flow from the Creek and three level feet of sea level rise also includes total Bay water. So it includes storm surge and king tide?

Mr. Materman answered: Yes.

Commissioner McGrath agreed with commentary: I wanted to agree with much of what has been said. It is indeed difficult to get this type of project through the system. The reason that I wanted to make sure that there was carefully hydraulic analysis is that many of the streams around San Francisco Bay do not provide the advertised flood protection and it is because mud comes in from the Bay rather than from the streams. Without enough tidal action it can be a problem. I am satisfied that they have trained the tidal action that they do have into a low-flow channel and it is a pretty good bet. You do want to make sure that you do not lose the flood control capacity that you are building and you do not lose the habitat value.

We have to go on and have some discussions about how we make the world easier for projects like this and provide them the proper direction.

MOTION: Commissioner Pine moved approval of the staff recommendation, seconded by Commissioner McGrath.

Ms. Lydon read the staff recommendation: Staff recommends the Commission approve BCDC Permit No. 2013.007.00 to authorize the proposed project. As conditioned the staff believes that the project is consistent with your law and Bay Plan policies regarding fill, public access and natural resources. Staff also requests that the Commission allow staff to make minor typographical, grammatical and non-substantive corrections to the permit. And with that we recommend that you adopt the recommendation.

Chair Wasserman asked: Does the applicant accept the staff report?

Mr. Materman replied: Yes we do.

VOTE: The motion carried with a roll call vote of 17-0-0 with Commissioners Addiego, Bates, Gilmore, DeLaRosa, Gorin, Kim, McGrath, Nelson, Pine, Randolph, McElhinney, Sears, Vasquez, Wagenknecht, Zwissler, Vice Chair Halsted and Chair Wasserman voting "YES", no "NO" votes and no abstentions.

9. Briefing on San Francisco Bay Restoration Authority (SFBRA) Nine-County Parcel Tax Proposal. Chair Wasserman announced: Item 9 is a briefing on the San Francisco Bay Restoration Authority's parcel tax proposal. The briefing will be made by Sam Schuchat and David Lewis from Save the Bay.

Mr. Sam Schuchat, Executive Officer of the California State Coastal Conservancy presented the following: Usually I start with talking about how fabulous and important the Bay is and the history of Bay destruction and Bay fill and the renaissance in Bay restoration and the need for tidal marsh and the dangers of sea level rise and climate change and I get to skip all of that with you.

The San Francisco Bay Restoration Authority is a nine-county regional government entity created in 2008 with the specific purpose of raising local revenue for restoration of San Francisco Bay. In January of this year the Board of the Authority which is now chaired by Supervisor Pine voted to put a 12 dollar per parcel tax on the ballot in all nine counties on the June Election.

This parcel tax will generate approximately 25 million dollars per year and over the 20 year life of the tax that will amount to half a billion dollars.

The decision to go now and to go in June was based on a combination of consistently good polling. There was a poll done for us in April of last year and then the Authority did its own tracking poll in December. A ground swell of political support and the realization that the November Ballot is going to be far too crowded for a small, underfunded entity with a plucky campaign team to be able to break through the noise led to this decision.

This is why we are going in June and also because our polling shows pretty conclusively that for this issue, for the restoration of San Francisco Bay, there is no significant difference between a June electorate and a November electorate.

The Measure requires a two-thirds vote in all nine counties in aggregate to pass. We believe that if it is successful the money generated will be leveraged probably on the level of about two to one with existing state and federal funds.

Federal support for some of the other major estuaries in coastal areas around our nation is far, far greater – shamefully greater than it is for San Francisco Bay. Puget Sound gets 25 to 30 million dollars a year, Chesapeake Bay gets 50 to 75 million and the Great Lakes gets about 300 million dollars of federal money per year.

Half a billion dollars for San Francisco Bay restoration is approximately equal to what the state and federal governments and some private funders have come up with for restoration of San Francisco Bay during the prior 20 years. It is a significant increase.

Revenues from the parcel tax will support a wide range of restoration and shoreline enhancement projects as long as there is a wetlands restoration component. That includes habitat restoration, levee construction and repair, trail signage repair, improved trail access, shoreline cleanup, trash capture where creeks enter the Bay and so on. Mr. Materman's project would certainly be the kind of thing that we could fund going forward if we are successful.

No more than five percent of the revenue will be able to be used by the Authority for administration. Half of the money will be distributed geographically around the Bay based on population. All of it will be distributed using the same rigorous grant-making criteria currently used by the Coastal Conservancy, advised by a large advisory council, vetted in public meetings of the Authority, consistent with your BCDC Bay Plan for projects that you have permitted that are on the San Francisco Bay Joint Venture list with a citizen oversight committee.

Coastal Conservancy staff working through our Advisory Committee and all of the other stakeholders in the Bay Area who are involved in the business of Bay restoration put together a sample project list which is on the website of the Authority and which the map is based on.

Some of the things that we could fund if the measure passes includes, restoration of the Hayward shoreline in Alameda County, the Chelsea Wetlands in Contra Costa County, Crissy Field here in San Francisco, Belmar Keyes which is of special interest to the Coastal Conservancy because we own it. It is the next phase of the Hamilton Project. Edgerly Island in Napa County. East Palo Alto shoreline, there are long term flooding risks for the community in East Palo Alto. It is one of the most at-risk communities for Bay flooding in the Bay Area. And completion of the Bay Trail through San Jose.

The Authority took its vote. We are now in the process of working with all nine county registrars; all of whom have different rules and procedures. We must make sure that the Measure is properly noticed in newspapers of record in all nine counties in multiple different languages and that the arguments for and against are collected and translated and put into the Ballot Pamphlet.

I am happy to tell you that there is a campaign. David is going to speak a little bit about that. Over 50 elected officials and local leaders have endorsed this measure. We have the support of business groups, environmental groups and organized labor. We have been getting very good responses from various editorial boards around the Bay. We expect that to continue.

Mr. David Lewis of Save the Bay addressed the Commission: We are very pleased that the Restoration Authority has decided to move ahead and put this measure on the Ballot. I trust that there is no concern from the Commission about benefits that this would provide.

There is a reason that this has not happened already. It is hard. Under the state's rules it requires a two-thirds vote of the combined nine-county voters who show up in June. Our polling has consistently shown very strong support, however it is always hard to get a two-thirds majority.

Many of you know that there is a deep love for the Bay throughout the community but also most people take it for granted. The opportunity that is going to present itself is for everyone in the region to be hearing about the Bay for at least a month or six weeks. They are going to hear more about the Bay and what it needs and how this measure can provide benefits if the campaign is able to raise the five million dollars that it wants to raise.

We have raised over a million dollars. The campaign is sponsored by: Save the Bay, the Bay Area Council, Silicon Valley Leadership Group and others. Many of you in this room have been cheerleaders for this effort. Several of the Commissioners actually serve on the Restoration Authority Governing Board. Many other Commissioners have endorsed the Measure as individuals or in their capacity as leaders of counties and cities.

Because this is a nine-county campaign it provides an unusual opportunity since the region rarely if ever votes as nine counties on the same thing. It does not happen very often. In this case it does make sense to advertise to the whole region. This is also a challenge because that is pretty much the only way we can reach 3.5 million eligible voters. There will be some grassroots efforts as well.

We do not want to miss this opportunity. We absolutely need everyone in the region to not just hear the 75 words about the Measure but to see the images you have just seen about the challenges on the shoreline and the opportunities for restoration.

This all came about because of a historical accident and some very astute political moves to capture 35,000 acres of Bay that had been diked off but not yet filled in. That is what this money can be used to restore with all the benefits that Sam talked about.

I will leave you with a list of the endorsers. It includes a wide range of organizations and individuals. I would encourage you as individuals or as representatives of your communities and organizations to join the list.

I will stop there and answer any questions that anybody has.

Chair Wasserman asked: Any questions for David?

Commissioner Nelson had a question of his fellow Commissioners: This is not agendized for action today so we cannot take action on this item even if we chose to. It is important to us to think about whether that makes sense or not. I think on the one hand we are a regulatory agency and we want to think carefully about endorsing a funding measure that has a lot of potential projects that could come before us for permits.

I tend not to be so concerned about that because I do not think Measure AA prejudices any of those permits. It is important for us a regulatory agency to think about that.

On the other hand we are also one of the leading agencies in thinking about adaptation planning. That makes me enthusiastic about the idea of this measure.

So I think we want to think carefully about whether we should endorse a measure like this at all. My question really is for the supervisors on the Commission. I tend to think that our local governments are going to have a greater impact on this measure than BCDC will. My

question for the supervisors on the Commission is whether you feel it would make it easier for you to sell this measure to your colleagues and communities if BCDC took a position? Does it matter?

Commissioner Pine responded: I can certainly give you my perspective. We are eager to collect as many endorsements from individual political leaders and stakeholders as has been mentioned. The campaign is not making a real concerted effort to get city councils or boards of supervisors to take action.

Should it be the desire of this body it would certainly be welcomed and appreciated. I do not think it is a necessity. Our general course in the campaign is to solicit support from individuals.

Mr. Lewis added: Under the statute that the Restoration Authority is working with, having satisfied the requirements of the statute the counties individually do need to act to put it on the Ballot but it is actually ministerial action. They need to act and three or four of them already have. They do not have that much discretion in the matter.

Commissioner Zwissler had questions: Do we know what else is on the June Ballot in terms of initiatives?

Mr. Schuchat replied: Not a whole lot. There will be the usual slough of local things. Certainly there will not be anything this large and news worthy.

Commissioner Zwissler continued with a question for Executive Director Goldzband: We have just been given this sheet about endorsements and volunteering. Is there any conflict or problem if we do this as individuals?

Executive Director Goldzband replied: I would tell you as individuals my understanding is that you endorsing as individuals is certainly allowable. As a Commissioner of BCDC you would have the asterisk next to your name and said for identification purposes only.

Chair Wasserman added: I think we would want our counsel from the Attorney General's Office to check into this for us. Since I do serve as counsel to some government bodies Larry's answer including Sam's point about contributions is absolutely correct. Your service on here does not prohibit your individual political activities or your identification, being clear that it is for identification only.

Whether or not this body chooses to endorse is a separate issue. We will undertake that and decide whether to bring it forward and then you can collectively decide. But that does not in any way affect your abilities as individuals.

Any other questions?

Commissioner Gorin commented: Sonoma County is lending money. The Water Agency is lending money to put this on the Ballot. We are bringing it back to the Board for a possible endorsement. It is likely that we will do that.

I would encourage this Board to seriously think about endorsing this. We spend all of our time talking about Bay level rise and how we can adapt to it. Here we have an opportunity to really weigh in on this and to be a voice for advocacy. I think the endorsement of this body would go a long way towards the individual cities and counties Baywide; certainly the citizens but perhaps to the success of the levee.

Commissioner McGrath commented: I just wanted to express my appreciation to Save the Bay and to the Coastal Conservancy for their vision. I know how long this has been under preparation. It is hard presenting such a vision and making the effort to do that is visionary and courageous.

Chair Wasserman paralleled Commissioner Gorin's remarks: As David indicated this campaign is going to be the first very visible, Bay-Area-wide educational campaign about how we are going to truly save the Bay from what is coming. It is different than what we have been doing to save the Bay in the past.

So the campaign itself becomes critically important in the effort to educate people about what we are going to need to do to adapt to rising sea level recognizing that that is not the primary aim of the funds from the Measure. It will be a primary beneficiary from the way those funds are spent.

Any other comments or questions?

Commissioner Addiego was recognized: I had a question on the allocation criteria. It was mentioned that for 50 percent of the funds, there is a minimum allocation. Commissioner Gorin was very generous in her remarks because the North Bay is only guaranteed 90 percent.

Commissioner Gorin added: Yes. I want to complain about that. (Laughter)

Commissioner Addiego continued: Shouldn't it be based on the vote totals that come in? What was the criteria for this type of breakdown?

Mr. Schuchat replied: We wanted to make sure that there was some guarantee that every county in the Bay would feel like they were guaranteed some funding. Ultimately, the Restoration Authority will be a grant-making entity and people will need to apply for funds and there will be a rigorous process to pay the money out.

It is part of the nature of wetland restoration projects that they take a very long time. My guess is that we are not going to be looking at scores and scores of projects every year. It will be possibly a dozen that are ready at any time for funding.

The reason for the geographical distribution was to give some comfort to the voters and to organizations like the Sonoma County Water Authority and East Bay Regional Park District and Santa Clara Valley Water District, all of whom are actually loaning the Authority some funds.

Commissioner Addiego responded: So the merits of the restoration projects could end up with North Bay getting a much higher percentage.

Mr. Schuchat replied: Yes because half of the money will still go. The larger acreages are in the North Bay and in the South Bay.

Commissioner Bates commented: What are you going to say to the average voter? You have said that you are going to restore the Bay. What does that mean?

Mr. Schuchat replied: What we would say based on all the polling that we have done is that we are going to hand down to the next generation a clean and healthy Bay because that for the average voter is --

Commissioner Bates continued his line of questioning: So how are you going to do that?

Mr. Lewis addressed this issue: The main driver for doing this is to have the funds that are needed to take lands that are currently diked off as salt ponds or hay fields and restore them to tidal marsh with the flood protection for adjacent communities and infrastructure and all the other benefits that come from that.

That recreation of tens of thousands of acres of additional tidal marsh habitat is a top priority agreed upon by scientists as it is going to bring more fish and wildlife back to the Bay, more sharks, more pelicans --

Commissioner Bates interjected: You answered my question. It is very important because I think is an amorphous term, restoration.

Mr. Lewis added: The best way to do that for most people who do not have the expertise of the folks in this room is through pictures. The words do not have as much impact. That is what the campaign is designed to do. It really shows people before and after and future opportunities and actual attractive places and attractive fish and wildlife that people would like to see.

Commissioner Randolph reminded attendees: Just a reminder that two or three months ago we gave a presentation here on an Economic Institute study called, Surviving the Storm, that looked at the implications of a large storm event in the Bay Area. From that we came up with the aggregate figure of about 10 billion in potential economic losses in the region from a major storm event; and this is just to property and their contents. This did not include a lot of other scenarios for loss of life or other kinds of economic losses.

That study identified wetlands restoration as one of our best tools for dealing with those kinds of events, environmental benefits aside and sea level rise aside. There is a lot of backup analysis behind why this is a really good idea.

Chair Wasserman had a clarification for the record: I would just like to make sure that the record is clear that the loan that Commissioner Gorin referred to and the money that Sam referred to is loans to pay for putting the Measure on the Ballot, not for the campaign.

Commissioner Gorin agreed: Yes, absolutely. I appreciate the clarification. Fundraisers are being planned to raise money for the campaign. For whatever reason the Sonoma County Registrar charges a fortune to put things on the Ballot.

Chair Wasserman added: They all do. The unfortunate reality is it is very expensive to put these ballots out and therefore very expensive to put measures on the ballot. It is a problem with our democracy. We are not going to cure that here.

I want to make the clarification for two purposes. One is to make clear is that public agencies cannot contribute to political campaigns. They are not doing that. The other is, there is a campaign that will have to be funded which will be discussed outside of these formal forums.

Commissioner Pine gave additional comments: The polling is so encouraging because people have such a love for the Bay even when they do not live remotely near it. This gives us great hope that we will get the two-thirds.

The focus is on these 35,000 acres that is in public ownership. The Bay community would like to see 100,000 acres of healthy wetlands and we have 40,000 today; another 35,000 that will be helped with these funds will further this.

The cost of restoration of the 35,000 acres will not be covered by this funding alone. The hope is that it will leverage some other funds. It certainly will do so, in particular; the South Bay Salt Pond Project hopefully will have Army Corps and federal funding. It does require a local match and some of these funds could be put to that purpose.

Finally, I find this to be compelling because of its regional nature. The problems we deal with here in the Bay cannot be solved city-by-city or county-by-county. Here is a fantastic precedent of all nine counties uniting around a solution. It is a good step for regionalism.

Chair Wasserman continued the meeting: Thank you all for your presentations and your efforts. The Chair moved on to the next Agenda Item. (Item 11 was heard before Item 10)

11. Briefing on NSF Grant to Develop New Type of Bay Model vis-à-vis Rising Sea Level.

Chair Wasserman announced: Item 11 is a briefing on research to model impacts of rising sea level and shoreline armoring on the Bay. The presentation will be made by Engineering Professor Mark Stacey of U.C. Berkeley to describe what his project is and what it will be.

Engineering Professor Mark Stacey of U.C. Berkeley addressed the Commission: I am going to just hit the highlights. Maybe the way to motivate this is to make explicit links to the things that have just been discussed. In the case of the San Francisquito Project we were talking about a shoreline project that had to think about tides, sea level rise and stream flows. There was a major transportation corridor cutting through the project and 11 agencies had to touch the project.

You have this interplay between shoreline infrastructure and flooding, transportation infrastructure and the governance infrastructure, the decision-making set of structures, agencies and individuals that come together to make decisions. The goal of our research is to think about those interactions and to understand how the feedbacks between those components manifest in the San Francisco Bay Area.

The project name is Resilience of Infrastructure as Seas Rise. It is an NSF-funded collaboration that connects U.C. Berkeley, U.C. Davis, U.S. Geological Survey, N.Y.U. now and the Climate Readiness Institute which is a new outreach entity that is going to help to bridge from academia to practice.

A one-meter sea level rise is well within the bounds of what may come and you can see that on this slide. These are very realistic scenarios and you can see the vulnerabilities of some of our existing infrastructure.

This will create particular spatial or regional interactions through the transportation response that need to be built into the awareness and the analysis. There are other special interactions, regional interactions as well.

Previous work on the hydrodynamics of the Bay has demonstrated that when you take large-scale regional action it has a feedback into the hydrodynamics that may provide protection beyond the footprint of the actual activities. That regional-scale action can have a larger regional-scale impact. It may also be true locally. Local shoreline actions can have a footprint beyond their local footprint as well.

From the perspective of transportation the special/regional impacts are something that is readily evident to everybody. When you flood an intersection it has impacts throughout the region. There are vulnerabilities that are local in nature but then through the transportation network will have regional impacts. That bridging from local to regional is a recurring theme in what we are interested in pursuing.

The methodology approach to the transportation analysis is to take a very highly data-driven approach that calibrates peoples' behavior and choices based on cell phone data. So when the network is disrupted new behavior can emerge through choices that those individuals will make about their commutes, about where they go shopping and so on. It looks at how the behavior of individuals aggregates to create a new regional traffic flow in response to disruptions to the network.

Finally, I mentioned in the case of the San Francisco case study, eleven agencies have to touch that project. Those agencies have very different scales and scopes of what they are thinking about. It is going from federal all the way down to local communities. In fact, you could even take it down to local property owners that have a role in this as well.

You have this from local-to-regional scale authority, governance or decision-making that is layered on this as well. A political scientist from U.C. Davis named Mark Lubell is going to be analyzing the governance network.

This is an NSF-funded project under their program called, CRISP, which is Critical Resilient Interdependent Infrastructure Systems and Processes. The idea is, you have different infrastructure layers that interact that may create vulnerabilities or may actually help to build resilience. A theme is how disruptions in one infrastructure system affects another.

The infrastructure systems that we are thinking about are, the shoreline infrastructure defined broadly to include everything from marshes to levees to seawalls to set backs to anything that is done to the shoreline as a management of the shoreline, it includes the transportation network focusing on roadways but also public transit mostly focused on moving people around, and finally, it is the governance system or infrastructure. It is an infrastructure that is providing services to the community that has its own resilience and threats of disruption.

Each of these layers has a special structure within it as to how it functions. There are feedbacks between these layers.

What we are going to focus on is how do these two feedback loops interact in the context of coastal flooding, and in particular, the threat of sea level rise to create more persistent and more recurring flooding in the future.

San Francisco Bay is caught between the rising sea levels on the one side and the precipitation and stream-induced flooding from the other side and then you have these interactions that occur in the infrastructure systems in between. That is the context for what we are going to be looking at.

We have four different research components of this project up on the screen. One is hydrodynamics and inundation risk and I along with Patrick Barnard and Li Erikson of USGS will handle this. The traffic response component will be overseen by Alexei Pozdnukhov of Berkeley. This will feed into a longer-term analysis of the transportation network, which is about infrastructure investment that a colleague at NYU will be thinking about, Samer Madanat. And then connected to each of these components is, how do we make decisions about them? And that is where the political scientist at U.C. Davis, Mark Lubell will be thinking about this network structure.

We are very early in the process of this project. The project started in the fall and it is a four or five year project. We are currently starting to build the components but we want to build out the interactions and the links within the project and with the community.

Thank you for your time and I am happy to have some discussion.

Executive Director Goldzband had a request: May I ask you to expand on one thing that you layered over which is, the modeling that you are doing with regard to the actual shoreline armoring and how the water moves based upon what happens there?

Professor Stacey replied: There are multiple scales that we can talk about. The Hoboken example is a nice example of thinking locally. By putting a seawall on either the north or the south side of the city you can see the differences in response and effect on the city.

In San Francisco Bay because of the importance of the tides there is this broader interaction. If you take actions at one location that dissipates tidal energy or reflects and retains the tidal energy it can affect conditions beyond the footprint of that project.

The Hoboken example is very locally dominated, local action, local response; San Francisco Bay has demonstrated that local actions of some scale can create a regional response in the tides which is important because the tides are what in great part defining those high water levels that create the coastal flooding.

So if you change the tidal dynamics at the Bay scale you are changing the forcing of flooding at the Bay scale.

Now a project on the scale of San Francisquito Creek is not going to have a footprint that extends greatly beyond the local area. But what we are talking about with the parcel tax is something that will have regional impacts on the tides.

And somewhere in between there is a threshold. And somewhere in between there are projects that are just big enough to have some regional impacts and those are going to be interesting ones to think about more fully so that we can look at protection beyond just the local action or vulnerabilities beyond just the local action.

Chair Wasserman asked: Other questions?

Commissioner Nelson inquired: I just want to make sure that I am reading this right and not stretching this analysis too far in light of the presentation we just had about Measure AA. This shows the impact of hardening on water level and I want to make sure I am reading this correctly. It shows South Bay and North Bay but in particular what I am thinking about is, as we think about making planned investments to restore diked Baylands to unhardened our shoreline, that it is having positive effects on flood risks.

Professor Stacey replied: What we did was simulated a few different very broad-brush scenarios. We built in the model seawalls around the existing shoreline of North Bay and did nothing to South Bay and allowed levees to be overtopped and anything that would happen with one meter of sea level rise.

The right hand panel shows the reverse, seawalls are built on the existing shorelines of South Bay and let the North Bay waters go wherever they go.

What the colors represent is how much higher than oceanic water level are the water levels in the Bay. This gets into a number of other hydrodynamic issues with the fact that the tides are actually amplified in South Bay. So high water at the head of South Bay is higher than high water at the mouth of the Bay.

What these two slides are comparing is super elevation above the ocean. On the right if you take current shorelines and just build seawalls, keep the Bay where it is; you end up with something like 65 centimeters of super elevation above oceanic. If you let water go it ends up being more like 35 or 40 centimeters. So the difference is something like 20 to 25 centimeters, a foot difference. When we think about regional-scale restoration of shorelines, when we imagine converting hardened shorelines to more dissipative marsh or shallows; what that does is it reduces this tidal amplification.

There are pluses and minuses to this. You are losing some tidal range, which is great from a flooding perspective but if you are trying to maintain high-marsh habitat you have to think about that tradeoff. That is the kind of regional interaction that we will be looking at.

Commissioner Nelson continued: But this gives a sense of the scale. These are not small impacts. We are talking about regional adaptation efforts that could have a pretty meaningful impact on water levels.

Professor Stacey added three caveats: One caveat is that difference of a foot is rounded off in feet. The second caveat is that difference is really at the head of South Bay and that is where it is maximal. And the third is the difference that we are showing here is the maximal difference that you could really make in terms of shoreline strategy.

That number of a foot is the extreme high value and I want to make sure that is clear.

Commissioner McGrath added: This is a fascinating discussion and I am glad that Larry opened it up. One of the debates here is “how much planning needs to be done at a regional scale versus at a local scale”. I do not think anyone here wants to load an unnecessary new regulatory burden on a project like the San Francisquito; that they have to look at the regional scale implications. The question is, “how do we get that done?” That is the existential question. My question to you is, “how much of that are you going to do for us?”

Professor Stacey responded: Even in the case of San Francisquito the external effects come up. It comes up even on those very local projects. The real question is, at what scale does a local project have a significant impact that extends beyond its footprint, and similarly, at what locations in the Bay might there be particular vulnerabilities?

We are going to be developing, the USGS modeling tool, the COSMOS is a storm-modeling tool, we are going to be developing capabilities to do shoreline scenarios within that. How fast those calculations will be is to be determined and how user friendly it is going to be to work with that. What we want to do is explore, where is that threshold between local project, local impact; let’s call it a sub-regional project with regional impacts. Where does that transition occur? It is something we want to explore.

When you get to specific case studies we are going to have to keep that dialogue open. It is something that I am personally motivated to do as lead on the project, is to maintain that connection and to make our modeling results as useful to those individual decision-making as possible. We are going to have to choose the analyses that we do carefully. We are heading in that direction but I do not know when we will be there.

Commissioner McElhinney commented: I want to highlight something that was said earlier. I did want to go back to the transportation facilities and particularly the slide where you show CRISP. You started by saying that you do not need to be here to motivate us. I think you are motivating us and hopefully we are motivating you, particularly pertaining to the work that the JPA and the cities and the flood control district did for San Francisquito Creek, not just at the 101 connection but all up and down in service to those communities really does open up this model as a great example. This is community, it is elected officials, it is agencies coming

together, teaming up, communicating and being there at the right time for delivery of what is needed on these facilities for funding and for decisions and bringing all those resources together.

Hopefully you will use real-world examples and prove this model. We hope to see you succeed and we are here to help you.

Professor Stacey added: We are three or four months into a four or five year project. We are at a point right now where we are starting to identify some case studies that we want to do a more focal refined analysis of how shoreline strategies would influence local disruptions to the transportation network and also how those local strategies on the shoreline would alter larger scale hydrodynamics.

And we are going to be identifying a couple of case studies. The Bay Bridge Toll Plaza is very likely to be one of the focal sites. Beyond that we are still looking. As we analyze these case studies the larger project is going to be thinking about kind of abstracting them to think about the interactions. But we will also be learning about the specifics of the sites and things that relate to specific applications in the San Francisco Bay. Keeping both of those aspects proceeding is something that we will need to be working on.

Commissioner Nelson had another question: I have a sense of what we can expect from you in terms of protective infrastructure and transportation infrastructure. One of the really thorny questions we have to think about is governance. How do we get this region to work together effectively on a threat that affects such a vast number of agencies at different levels of government? What can we expect from you as a product with regard to governance? And not, "it's messy" - because that much we know. (Laughter)

Professor Stacey expanded on Commissioner Nelson's commentary: And there is another component to that which is the time scale for action and the variation and the immediacy of the threat. And that is one of the first things that we have started to analyze is, to take flood projections from the USGS and look at, as a function of sea level, when do communities see the biggest jump in their risk?

This network sketch shows which communities are similar in that regard; which communities see the threats around the same times? Cities that are linked are ones that have vulnerability around the same sea level.

There is this time element to it, as to when it is an immediate problem for me versus my neighbor versus other agencies?

How are we going to disentangle this? The political scientist involved with this is someone who has thought extensively about the structure and function of governance systems. Governance meaning just decision makers. It is not just agencies with oversight. It is also homeowners that are taking actions or property owners that are taking actions.

He is going to identify what linkages exist in the system from a governance perspective, regional to local. Then we have two other components which is to think about, what is the regional-to-local link in terms of shoreline projects? And what is the regional-to-local link in the

transportation network? How those three structures are or are not aligned is an indication of how prepared the governance system is to manage those threats. It is looking for similarity in structure and function across the different levels. We are expecting to find big differences. One of the things that the long-term resource allocation analysis will focus on is, if you were omniscient manager of the transportation network what would you do with the transportation network given the looming threat?

Mark Lubell will be analyzing, what are the constraints on that decision-making? And what is the end point we might end up at instead? It is a way to say, are we going to be able to stay towards something that is best regionally or not?

We all have got different elements that we are looking at but it will be an ongoing dialogue.

Chair Wasserman commented: Can you go back to the preliminary inundation analysis slide? What are the things between the named cities?

Professor Stacey responded: There are other cities in alphabetical order. Something went wrong with the graphic.

Chair Wasserman added: You have motivated me to issue you and Mr. Lubel a very special invitation to our workshop on March 3rd.

Commissioner Zwissler asked: What do you need from us? How can this Commission best support you?

Professor Stacey replied: I appreciate that as an opening question because that is really the first step is to us opening that up. I think what is going to be coming is that Mark Lubel needs to develop empirically a description of how decision making is done. That is going to involve interviews, surveys and so on. If you can be responsive to those requests individually or as an agency that would be fantastic. In the coming months that would be the biggest leg up that we could get.

Commissioner Pine commented: I think this is a very interesting project. The city of Foster City is committed to strengthening and improving their levees considerably. They are under pressure from FEMA to do so. They are going to do that and they are going to take that bar down.

Then the question becomes, what happens when you create a nine-mile levee?

Professor Stacey replied: And that really speaks to this difference in the immediacy of the threat. There are different pressures that are going to hit different communities at different times. This result assumes current conditions. A lot of these communities are going to take actions before these levels of inundation hit. All this figure really tries to illustrate is when that is going to happen for different communities and Foster City will be hit very early.

Commissioner Pine continued: I am not sure that anyone knows what the impacts of a nine-mile levee on Foster City would be to the Bay dynamics.

Professor Stacey reiterated: And that is the kind of case study that we are going to be pursuing. And whether our timeline is fast enough to get out in front of the Foster City effort remains to be seen. But that is the type of case study that we want to explore.

Commissioner Gorin had an editorial comment: I loved this interesting presentation. If you hardened the South Bay the inundation in the North Bay is pretty traumatic. The modeling done by BCDC indicates the inundation of the North Bay pretty traumatically but yet we seem to be invisible in the North Bay when you talk about the inter-dynamics and decision making and the threat of inundations. Don't lose us. (Laughter) Solano County, Sonoma County, Napa; we are all going to be dealing with this.

Professor Stacey added: And I will say that we are guilty of it right here because we did not include Suisun Bay in our simulation of inundation. It only extended to the Carquinez Straits.

One of the reasons that I tend to talk a lot about South Bay is that where this tidal amplification occurs. So the opportunity for spacial and regional interactions is stronger in the South Bay.

That is not to say that there is not an opportunity in the North Bay and I will do my best to make sure that we maintain that. Many times I use South Bay as an example because it is almost an ideal system to think about this tidal amplification.

Chair Wasserman concluded the dialogue: Thank you very much Mark. This is a great project and we are going to be interested in following it and working with you on it.

Professor Stacey added one last comment: The Delta is a whole other animal. If you are thinking about salt intrusion and salinity, that is a different analysis than what we are going to be pursuing. It creates an additional pressure gradient that would drive salt intrusion. We are not going to be simulating that. That requires a different dimensionality in the modeling than what we are going to be doing.

People have looked at that and it does create intrusion but it is not something that I am ready to speak on today. With regards to the Delta in this case, levee vulnerability in the Delta is a huge issue. In what we proposed we have not moved into the Delta. We are going to focus on the transportation networks that rim the part of the Bay shown on this slide. That is just to keep it to something that we can make tractable. It is where you have more of the transportation interactions.

Chair Wasserman announced: That brings us to the next item on the agenda. (Item 10 was heard after Item 11)

10. Briefing on California WaterFix. Chair Wasserman announced: This item is a briefing on the California WaterFix. This will be presented by Cody-Aichele-Rothman who will introduce the briefing. I will need to step out briefly at 3:30 to make a phone call.

Planner Aichele-Rothman presented the following: Today we have a presentation on the California WaterFix by B.G Heiland. He is the Executive Advisor to the Chief Deputy of the Department of Water Resources. His presentation will be followed by a panel of local and regional experts to discuss the implications for the Bay.

The WaterFix is the latest proposal to address water delivery reliability in the state and is the successor to the Bay Delta Conservation Plan.

Paul Hellicker of DWR gave a presentation to our Commission in February of 2014. In May of 2014 the Commission hosted a panel discussion similar to this one. We received your approval to send a comment letter to DWR in July of that year.

Since that time there have been quite a few changes to the project which we are here to discuss. Therefore, with no further ado I would like to welcome and introduce Mr. Heiland to present on the project.

After his presentation, Mr. John Coleman, Chief Executive Officer of the Bay Planning Coalition will act as our moderator and introduce the rest of the panel to discuss the California WaterFix.

Mr. "B.G." Heiland presented the following: I am an engineer and I am not an attorney. I will provide a quick update on some of the changes. I will briefly go over some of the new alternatives that came out in the Recirculated Draft and then discuss some of the effects on San Francisco Bay.

There have been a few changes in transitioning from the Bay Delta Conservation Plan. That was a habitat conservation plan with assurances looking at a 50 year term. We have now transitioned to the California WaterFix which looks at a Section 7 Authorization and going through the Endangered Species Act 2081(B) process with no long-term assurances.

There have been some design modifications to the proposed project which was formally in the Public Draft Alternative 4. We have now introduced several sub-alternatives 4A, 2D and 5A which I will discuss in a little more detail in an upcoming slide.

Included in the Recirculated Draft were some updated environmental analyses of fish and aquatic habitat, water quality, effects downstream on the Delta, on the fisheries, air quality, health risk assessment, traffic, noise, geotechnical investigations and inclusion of an additional need for determinations.

A lot of information went into the Recirculated Draft. Alternative 4A is now called the California WaterFix. It replaces Alternative 4 from the Public Draft.

What it does is that it separates out the conveyance facility from the habitat restoration. Whereas with the Public Draft that was all pieced together, a 50 year permit, everything together. We are now separating that out into two different pieces.

We received public comment addressing, "what is going to happen in 50 years? How can you make assurances and guarantees in what is going to happen; and that the restoration that you propose can actually get implemented and is successful?"

This does continue to fulfill the Delta Reform Act. This alternative was analyzed as part of the Recirculated Draft.

The three alternatives that were introduced were 2D which is a 15,000 cubic feet per second alternative, 4A which is the new proposed project at 9,000 cubic feet per second and then 5A which is a capacity of 3,000 cubic feet per second.

With this project now instead of the restoration that we had associated with the facility we are now going to be solely doing mitigation. We are looking at about 15,600 acres total where 2,300 acres are habitat restoration and the remainder is habitat protection.

We did some additional analyses as part of the Recirculated Draft. We did an assessment of the water quality constituent effects on the Bay, an additional analysis of sediment loading and other effects on the downstream Bay related to fish and aquatic resources.

Water quality monitoring was updated. We found that there were no significant water quality impacts. This was evaluated at the early long-term effects which is a time period of looking at 2025, looking at 15 centimeters of sea level rise. That is about six inches of sea level rise.

Included is no large-scale habitat restoration and as we have done with all the alternatives the project has to appear with all the water quality objectives and criteria in various federal, statewide and regional plans and regulations.

With the water quality there was a qualitative analysis. It looked at a variety of constituents that we analyzed for the project for all the alternatives looking at boron, bromide, chloride, DOC, dissolved oxygen and other constituents. All the effects were found to be non-adverse or less than significant.

With salinity we found that even without the project there is going to be significant impacts with sea level rise. Where there are impacts we get those down to less than significant or non-adverse with our mitigation measures.

We have a variety of operational criteria that we built into our mitigation measures to offset the potential impacts.

As far as sediment goes from the Sacramento River, about 10 percent of the load has the potential to be removed. However, this is smaller amounts than what comes into the Bay through other sources.

However, we have made the commitment in the Public Draft and again in the new biological assessment information that we will work to reintroduce that sediment pending approval from the regulatory agencies. As far as the sediment goes the effect would be non-adverse and less than significant.

We are still working on our environmental review process. We are going to be putting out our final document in the middle part of this year. We are going through our Section 7 consultation and hope to have a biological opinion coming in the next couple of months. We

are working on our Army Corps of Engineers Section 404 permits. And we are about to begin our process with the State Water Resources Control Board to change the petition. We have our first set of public hearings on April 7th. With that we ask that you stay involved and see how we want to work with other panel members to address questions that may come up.

Mr. John Coleman with the Bay Planning Coalition spoke: Thank you very much for the opening remarks. I will be moderating this discussion today. Anybody who has read the California WaterFix Plan will look at it and say, "Good God, this is the greatest thing since sliced bread." But there are questions that have been raised in the Bay Area and the Delta and throughout the state that need to be addressed.

One of the things that is so controversial is the, quote/unquote, the tunnels. And clearly there is a big change from 1982 where it is 9,000 CFS versus 21,800 CFS back with the peripheral canal.

They are talking about protecting the Delta through the various environmental programs that did not exist in the past. Both the Governor and the President, both of the administrations are in support of this. But it leads to some questions.

We had CalFed and I think that is gone now. BDCP, well that sort of is going. Now we are on the WaterFix. So how are we going to address these issues? And Supervisor Pine and Barry Nelson talked about inter-agencies working on a previous discussion point, a previous agenda item; and that is going to be, how are we going to get all the agencies to work together and how are we going to have assurances?

Before the panel discussion we do have two speakers who are going to be able to address everybody for three minutes. You also should have received an item from, Protect Our Water, for the record, a memorandum that was submitted.

Assurances are talked about constantly. They talk about 9,000 CFS. How do you provide assurances to those who have concerns or questions on this issue that it is not going to be increased at some point in time? This is a legitimate question that a lot of people have that has to be addressed and talked about.

Mr. Dick Allen addressed the Commission:

Good afternoon Commissioners. My name is Dick Allen and I live in San Francisco. In the year 2000 we formed the Lake Merced Task Force and I served as Co-Chair of the Water Committee. The water committee was able to help save Lake Merced by stopping the over drafting of the Westside Basin Aquifer, which stretches from Golden Gate Park to the SF Airport. I've also been a member of the San Francisco Chamber of Commerce Board of Directors. Good water management is good for our communities and good for business. In order to better understand Governor Brown's abrupt conversion from the Bay Delta Conservation Plan to the WaterFix plan, I've been attending a number of public Bay/Delta Sacramento River water meetings, including the all day CAWATER 2.0 water panel's conference in Sacramento last month. The WaterFix plan clearly presents a new unpublicized threat to our SF Bay, the Delta and Estuaries. In reality, California WaterFix is a water mismanagement plan.

The destructive capabilities that the massive twin tunnels can have on the Bay/Delta ecology and habitat will be devastating. After six years of government water agency studies and meetings, WaterFix has already cost 240 million dollars. I don't believe the State has yet answered some of the most basic questions—questions which your own staff raised seven years ago. Most basic are the following: One, What will be the negative impacts of the diverted Sacramento River water flows on the Delta and SF Bay? Two, With two Federal agencies and a number of State water agencies involved in the WaterFix program, the question is, Who's In Charge? Whose hand will be on the valve that sends water south? Three, What will be your strategy if Federal and State Agencies just ignore BCDC's permitting requirements and do "as they see fit"? I would like to call your attention to the six page memorandum written by your own Coastal Program Analyst, Jessica Hamburger (Davenport), dated May 2009. Here are two of the many solid recommendations made: One, Marsh Plan: "There should be no increase in diversions by State or Federal Governments that would cause violation of existing Delta Decision or Basin Plan standards..." Two, "The EIR should include analysis of the fresh water flow needs of the entire estuary, not just the Delta." Moreover, in July 2014 your Executive Director Mr. Lawrence Goldzband released a memorandum referring to the Bay Delta Conservation Plan Draft EIR and Impact Statement that included these points: One "The Delta Stewardship Council's Independent Science Board noted that the Bay Delta Conservation Plan did not evaluate areas downstream of the Delta even though the National Research Council's scientific review specifically stated that this area should be included." Two, "The analysis should establish clear standards and thresholds of significance, in consultation with scientific experts." Commissioners, I urge you not to vote on a permit for the Twin Tunnels until the Twin Tunnels anticipated impacts on the bay are known. Thank you for your time.

Mr. John Hooper addressed the Commission: I have the pleasure of serving as Vice Chair of the Board of the California Tahoe Conservancy and we deal with public access, wetlands and stream restoration and erosion control projects. I did submit for the record a paper that your staff alluded to which was released yesterday from the San Francisco Bay Keeper. It is a bleak finding and it contradicts the Brown Administration's public relations campaign pushing for the construction of the tunnels. Last month the Delta Independent Science Board's review of the draft environmental documents summarized them by saying, they fail to adequately inform weighty decisions about public policy. I will request that I be able to submit my written statement for the record. I will thank you for your time right now.

Acting Chair Halsted continued the meeting: I would ask for a motion to adjourn the Commission meeting and proceed as a committee.

12. Adjournment. Upon motion by Commissioner Nelson, seconded by Vice Chair Halsted, the Commission meeting was adjourned at 3:37 p.m. and continued as a committee.

Mr. Coleman continued his commentary: The panel will consist of B.G. Heiland, the Executive Advisor to the Chief Deputy at DWR, Steve Chappell with the Suisun Resources District, Gary Bobker, the Rivers and Deltas Program Director for the Bay Institute and Carl Wilcox, the Policy Advisor to the Director for the Delta, the Department of Fish and Wildlife.

If you live in San Francisco or the East Bay they bypass the Delta for bringing their water into the East Bay and the San Francisco Peninsula.

Mr. Bobker made a short presentation: I am Program Director at the Bay Institute. When you consider the WaterFix Project it is really important to consider it in context. I would suggest three filters.

The first filter is the needs of the San Francisco Bay Delta Estuary ecosystem. The second is, what is the preferred and appropriate approach to water management in the state of California? And the third is, what are the particular merits and demerits of the project itself?

And what is the status of the information that you have about it?

The Bay Estuary is characterized by land, water interface. Our wetland habitats and our flow regimen are the drivers of ecological conditions; things like the parcel tax we are talking about are an important measure to address the habitat part but the flow part is equally important.

The information that we have right now about flow conditions in this estuary are that flows are woefully insufficient to support sufficient ecological conditions. The conditions in the upper estuary are nearly catastrophic.

The degradation of water quality conditions from the loss of flow inputs, fresh water flow inputs, the status of flow-dependent estuary species in the upper estuary is closer to extinction for many species than we've ever seen.

Any project that will conceivably reduce fresh water inputs further needs to be taken in that context. And that would suggest that it is good public policy to set new protective regulations that determine fresh water flow regimes to protect the estuary before you go ahead with such a project.

The state of California has initiated that process but has not finished it yet. That is an important consideration in looking forward. What are the rules that will protect the estuary that should govern any project like this?

Second, what is the appropriate context for looking at water management? In 2009 in the Delta Reform Act the Legislature adopted a policy of reducing reliance on the Delta as a source of export water supplies for future water supply.

The problem that we have in looking at the California WaterFix right now is that it does not consider reduced exports or alternative water management strategies that would increase local self-reliance and move exporters away from exports.

The Governor's Water Action Plan does consider such actions but they are really not considered in the analysis of the WaterFix.

It is really difficult to say what would be the most efficient way to convey water through the Delta if you are not considering alternative export regimes that might reduce exports or that build up local self-reliance through the use of conjunctive use strategies, water recycling et cetera.

The lack of that analysis also sheds light on a big problem which is that the willingness and ability of export parties to pay for a new project is really going to be determined by what tools are available to them, what the costs are for new conveyance versus other things.

The third part is the project description and documentation itself. I have been involved since 2007 in trying to work with the Schwarzenegger and the Brown Administrations on this project. We are not reflexively opposed to new conveyance per se. The documentation of this project is woefully inadequate. The documentation that we do have suggests that there would be impacts in the range of what they call, not significant, which might mean five or fifteen percent reductions or changes in habitat conditions when habitat conditions are marginal or in populations when populations are extremely depressed so that in combination with a no action alternative of climate change this project exacerbate the extinction of several species and the decline of water quality in the system and will reduce many inputs on which the health of the Bay relies.

Mr. Chappell commented: I am the Executive Director of the Suisun Resource Conservation District. The Resource District's comments were really focused on BDCP and its effects on the brackish marsh in Suisun and focused on Delta outflow not per se the construction of the tunnel, the point of diversion.

One of the key concerns that we have is although the document says that they are going to meet existing regulatory obligations, the Water Quality Control Plan, flow objectives; when you look at the analysis of this 18,000 page document some of the analysis were qualitatively assessed.

The conclusions were, it will be somewhat higher but it does not give you a number of how much higher. When you do the math and you look at it salinity increases in the Marsh from month to month on a monthly average could range from 162 percent to 3 percent, on average, 62 percent in the spring, 28 percent in the fall.

These types of increases in salinity in a brackish marsh are significant. One of the key factors that they added back in was, well, we are not doing all the habitat restoration so now looking at just our project, we will see what the salinity effects are on Suisun from the original BDCP.

I have to say that it is significantly better because they were proposing to convert half of the Marsh back to tidal wetlands which would have increased the tidal prism and caused significant salt water intrusion.

The reality is that they are also segregating the existing biological opinion, eco-restore obligations or 8,000 acres of restoration and saying, well, that's not part of our project anymore. And we don't know where it's going to happen or what those effects on salinity are so we don't have to consider them.

But they are going on as we speak today. So not knowing where restoration is going to occur those impacts to salinity and the cumulative impact of reduced outflow and changes in operations; our District came to the conclusion that they are not going to meet existing water quality standards and likely there would be significant seasonal and annual increases in salinity that would be detrimental to the environmental conditions for tidal wetlands in Suisun Marsh brackish wetland management.

Overall, it is a great concern. You have the policies to protect the Suisun Marsh and to make sure that those brackish communities are protected and I am concerned that we are going to see salinity increases on a magnitude that would make Suisun Marsh look like San Pablo Bay.

Mr. Wilcox addressed the Committee: I am with the California Department of Fish and Wildlife. The Department will be considering a permit application for DWR for the WaterFix. We have not received it yet but we expect it within the coming months.

We will be considering it in conjunction with our federal fishery agencies as they consider their biological opinions based on the biological assessment that was recently released in draft form or posted in draft form on the BDCP. That is basically the analysis that is being developed to support the development of integrated biological opinions by National Marine Fisheries Service and the U.S. Fish and Wildlife Service for the WaterFix Project and for our 2081 (B) Permit, Incidental Take Permit, for the WaterFix.

Currently the projects operate under existing biological opinions and a combination of consistency determinations by the Department for CESA, for winter run, spring run and Delta Smelt and a separate Longfin Smelt ITP.

Those permits have requirements in them that exceed what the current water quality standards are as far as outflows from a cumulative perspective and operate synergistically to provide a number of benefits.

One of the things the Department will be considering is that we will be issuing or would be considering issuing a permit that would address specifically the four effected state-listed species as well as the terrestrial species that could be affected by the project. But the focus here is on the flow issues and how operations would affect salmon and the smelt species and sturgeon.

The key criteria and concern for the Department in making its decisions, particularly as it relates to Longfin Smelt, is with outflow. Longfin Smelt along with several of the estuarial species in San Francisco Bay have strong and longstanding flow-abundance relationships. Those have held up over time even though they have been degraded by other factors that have affected food web productivity such as the introduction of invasive clams and other step changes within the estuary since 2000.

The flow relationship exists and that is the focus of the Department's analysis is how the project would affect existing outflow and/or future outflow. And one of the issues that we are confronted with and the project is confronted with is climate change and sea level rise.

Consequently, you see changes in runoff patterns with climate change as well as with sea level rise you see more intrusion into Suisun requiring more outflow to offset that intrusion.

And since the shift in outflow or precipitation and runoff, assuming the expected patterns occur, which is more precipitation, less snow runoff with earlier runoff; that creates some issues that are going to be very difficult to overcome as we make our permit considerations.

Flow is the underlying concern and it is the concern of the Department and our counterpart, federal fisheries agencies as we consider potential authorization of the project.

Mr. Coleman had a question: How will this project impact the standards for X2?

Mr. Bobker replied: I think that the issue here is, are you looking at how this project will affect the existing standards or the needs of the estuary? The existing permit requirements are inadequate. The whole point is that we do not allocate sufficient freshwater to protect fish and wildlife beneficial uses.

Looking at the impact of the project on a D-1641 baseline does not necessarily tell you what you need to know.

There are a whole slew of functions associated with freshwater flow that include the flow abundance relationships that Carl talked about. But there are other values like the transport of sediment and other materials and there is an eight or nine percent reduction in sediment inputs that is estimated by the project. There are unknown impacts to forage fish and food webs downstream of the project which could be quite significant.

The effect on wetland formation, beach erosion et cetera with the change in sediment is a question.

Rather than think about the baseline, think about what the functions in the Bay are. I think as a Commission one of the things that it is incumbent on you to do is to get more information. I don't think you have enough information to say what the impacts on San Francisco Bay would be.

Certainly, I am indicating that the information indicates that they would be adverse impacts. But you need more information before you can really understand or evaluate this project because much of the analysis of the downstream impacts on San Francisco Bay on the lower estuary simply do not exist.

Mr. Wilcox commented: X2 is the line of two parts per thousand salinity within the estuary. That moves up and down the estuary and sometimes it can be in San Pablo Bay when there is really high outflow or it could be at the Golden Gate. Normally it moves back and forth between the Carquinez Straits and slightly upstream of the confluence depending on the time of year and the type of year.

Mr. Coleman added: So it would be safe to say that during the drought of the last four years that line has been further up into the Delta versus a normal year?

Mr. Wilcox replied: Yes, way up. It has been up to the point where you cannot really calculate X2 position because it is bifurcated and it is up in the San Joaquin River and it is up in the Sacramento River.

Mr. Heiland commented: And we talk about X2 because it is used as an indicator of the location and extent of the low-salinity zone which is associated with the abundance of distribution of estuarial creatures. It is used as Gary said as the indicator of where habitat is and this is one of the major issues that relative to the flow abundance relationship is outflow translates into where X2 is. The more outflow you have the farther down the system the X2 is and the bigger the extent of low-salinity habitat in the Delta and Suisun Bay.

X2 is tied to salinity. So as X2 moves up that means that salinity is farther into the Delta and has effects on in-Delta agriculture and diverters from the Delta like Antioch.

Commissioner Vasquez commented: I am the Supervisor in Solano County. In 2009 the five counties came together that essentially represent the Delta and we have been expressing these concerns about the project, BDCP and now the twin tunnels.

Someone asked a question about assurances. Well, we are not comfortable with anything that has been given to us yet. And yet we meet weekly to talk about ongoing issues with this. And so six or seven years down the road we are still not completely sure that those co-equal goals are going to be met.

Until the counties that represent the Delta who are impacted, and I have one foot in the Delta and one foot in the Bay, that is why I asked the question earlier, how much water is it going to take to keep that X2 line in place where it does protect water quality for not just industrial users but the residents and agriculture and everything else.

I think those questions really have to be addressed before anything can be built.

Mr. Wilcox replied: Again, are the water quality standards adequate to protect? The current Water Quality Control Plan theoretically is supposed to be protective of beneficial uses in the Delta. These uses include fish and wildlife as well as other beneficial uses, agricultural and municipal and urban issues.

The issue about that is really going to be addressed ultimately by the State Water Resources Control Board through their Water Quality Control Plan update which has been underway for a while and will continue to be underway.

The point here is that the current system does not operate under D-1641 all the time. It operates as far as outflow under the effects of the biological opinions which create higher outflow conditions than you would see with just D-1641 particularly in the spring as well as in the fall in years when there is a wet or above-normal year and higher outflow would be required.

Commissioner McGrath had a follow-up question: Given the past two years of results in terms of what has happened, is it fair to say that operation under the biological opinions has been less effective in protection than was anticipated when they were issued?

Mr. Wilcox answered: I don't know that anybody anticipated what we have experienced over the last three to four years. Basically the issues that we are confronted with during the last couple of years have been balancing the needs of winter-run Chinook salmon in the upper Sacramento River below Shasta Dam and providing cold-water temperatures for them.

Commissioner McGrath interjected: But it did not work, right?

Mr. Wilcox answered: It did not meet it very well. To be able to do that has required relaxation of the outflow standards through the Delta and into Suisun and the Bay to be able to capture enough water to have a chance of managing the cold-water pool in Shasta.

We are going to be dealing with that same issue this year, again. We have not succeeded very well one way or the other the last two years as is well documented.

Commissioner Nelson had questions: The first question I want to ask is about sea level rise and adaptation. The three agenda items all tied on sea level rise adaptation issues and we spent a lot of time thinking about those issues in the Bay, not in the Delta outside of our jurisdiction.

I was struck by the comment that the WaterFix is looking at effects related to sea level rise and the horizon you are looking at is 2025. Do I have that right?

That leaves me curious. We just heard a presentation and we just had a vote on a flood control project in San Francisquito Creek and construction on that project is going to begin this summer and they are looking at sea level rise in 50 years and adaptation planning in case they have to raise levees and floodwalls after that.

So they are looking at a solid 50-year horizon after they begin construction. With a 2025 year analysis point it would be remarkable if the tunnels were operational by 2025, perhaps that is not impossible but it is pretty close to the most optimistic date upon which the tunnels would be operational.

I am puzzled with a proposal where the analysis looked at sea level rise issues and pretty much looks at conditions on the day the project would be begin operations. Can you explain how that tracks?

Mr. Wilcox replied: With that we originally as part of the Bay Delta Conservation Plan looked at a longer term planning horizon. We had done the analysis at 2025 and a late long-term at 2060. So we looked at for 2025 fifteen centimeters or about six inches of sea level rise and for late, long-term about 2060 at 45 centimeters or about 18 inches of sea level rise.

So we had looked at both of those time horizons and granted that construction for a large controversial project, 2025, is rather optimistic but we wanted to see what does the system look like down the road. Do our benefits still stand the test of time even though it is a short lookout of 10 years? What is that system going to look at and to compare, how are the alternatives to that of a no-action looking at what does without the project look at 2025 and looking at the relative differences in assessing the benefits there.

Commissioner Nelson continued: But the project has a long lifespan, a long planning horizon. I am just trying to understand that that would give you an important measure; how the project would operate on the day you flip the switch but the project would be in place for decades.

Mr. Wilcox replied: Right, and that is where the information we had at the 2060 horizon still showed the benefits of having the system operational even at 2060.

Commissioner Nelson had additional questions: You ran through a slide that shows the proposed wetlands mitigation. The projects are already under obligations to mitigate under the biological opinions and it is about 25,000 acres of floodplain and tidal marsh habitat combined. I am hoping you can walk us through the current mitigation proposal and how it relates to the existing biological opinions. I was not sure whether the 30,000 acres included the existing mitigation in the biological opinions or if it was additive to that.

Mr. Wilcox answered: The mitigation proposed by the WaterFix would be separate from the restoration efforts that were listed out by the biological opinions. And that was what CalEcoRestore is responsible for. The 30,000 acres under CalEcoRestore is separate from the mitigation that is being proposed for the WaterFix.

Commissioner Nelson asked: So where is the 25,000 acres that is in existing mitigation obligations for the projects under the BOs? Where does that 25,000 show up in the math here? Does it show up in WaterFix?

Mr. Wilcox replied: No.

Commissioner Nelson continued: Does it show up in EcoRestore?

Mr. Wilcox answered: EcoRestore.

Commissioner Nelson continued: So the proposed habitat restoration in the WaterFix side is entirely additive to the mitigation requirements – I'm sorry the mitigation requirements are entirely additive.

There are a lot of issues here that are outside of the Commission's jurisdiction. Effects on the health of the Bay are squarely inside our jurisdiction and we have talked around a key question here. I wanted to ask it directly. What would be the long-term modeled effects on outflow under the proposed project today with regard to average Bay outflow compared to existing conditions?

Mr. Wilcox replied: I think this ties to the climate change analysis. The analysis that has been done in the original BDCP looked at the changes in exports. Basically what you see over time is that exports go down with climate change because of changes in precipitation patterns and changes in requirements to meet outflow criteria.

Those are available within the previous analysis that was done for Alternative 4 which was the proposed BDCP project that looked at project operations at 2060.

Commissioner Nelson asked: And so, what is the answer?

Mr. Wilcox replied: I think it is a somewhat equivalent to what you see today if you looked at the high-outflow scenario which was the H4 scenario. There was some positive relationship in the amount of outflow. It degrades because you see more outflow in the winter months as opposed to the spring months.

Commissioner McGrath had a follow up comment: I am kind of confused. My concern and my metric for the health of the Bay is sediment. The Bay is starved and that is something that we have known about for 20 years. We have an allegation or a claim from the BayKeeper that there is a 20 percent increase in diversion. The capture successful and more successful capture of winter outflow has a significant effect on transport of sediment to the Bay because sediment transport is not linear it is related to the energy and the outflow. I am getting, well, maybe there is a nine percent decrease but maybe we will put it in if the regulatory agencies will let us which means, maybe we don't have to worry about the Green Sturgeon which is sensitive.

There is time and season impacts of turbidity. I don't understand whether or not I got an answer that says, there is not going to be an increase or there is going to be an increase but you don't have to worry about it or there is going to be an increase and maybe we will mitigate it.

Which is it?

Mr. Wilcox replied: The WaterFix does not change the amount of sediment that is delivered to the Delta beyond the fact that through its diversion point it diverts silty water that is coming down the Sacramento. So that is where the nine percent comes from in that when it is diverting it is normally diverting during high-flow periods when turbidities are high. And it is taking sediment with it.

And one of the interests of the fisheries agencies is that be put back into the system after it has been settled out and collected.

The issue is not that – the effects on sedimentation are sediment delivery, you are still looking at the same kind of unimpaired flow that you see now which is primarily responsible for delivering sediment to the Delta.

It does not overcome the effects of the fact that there 1,800 dams up there that collect a lot of the sediment that used to come to the Bay and that is why the Delta and the Bay have a deficit. It is not that the WaterFix is necessarily changing that. It is taking some but it is already starved.

Mr. Bobker commented: I would add that at best you are looking at status quo flows and at worst you are looking at potential of significant degradation. It is important to remember in this context that the project purpose includes maximizing export deliveries. And that gets back to the whole issue about using exports versus other means.

There will be within the flexibility of the operational criteria developed for this project it is going – the arrow is generally going to point toward trying to increase exports and necessarily reducing flows.

Also, I do not think that the documentation to date has adequately looked at the cumulative impacts of adding other components to the system. As you know the state of California is contemplating potentially adding significant new surface storage to the system. And the effect that that has on flow and sediment transport could be of interest.

Commissioner McGrath continued: It is in the proposal. Originally there were a series of wetland restoration projects within the Delta that would have scalped more sediment out of it. So it would have been good for the Delta but bad for the Bay. And again, the language was pretty fuzzy on whether or not those sediments would be provided to sustain those areas which needed to be brought up in grade or it would be some kind of further loss to the Bay.

I have to take the position that once you have lost as much sediment as we lost and you are starting to see erosion of sensitive Bay resources and you got at least continued sea level rise and most likely accelerated sea level rise which needs more sediment not less; any loss of sediment is a significant impact.

Mr. Coleman added: And the Bay Planning Coalition has an answer for that. (Laughter) I have a question for Steve. What would it take for your Resource District to be able to support the California WaterFix? What would you be looking for in order to say, yes, we can embrace this?

Mr. Chappell replied: I think it gets back to the assurance and the statement that they are going to meet existing water quality objectives yet presenting data in their Draft EIR/EIS that does not support those conclusions or their level of significance and their qualitative assessments instead of actually doing salinity modeling and documenting that is troublesome.

We have a contract with the Department of Water Resources and the Bureau for water quality objectives. We are committed that they honor that. Our concerns are, if this changes the flow regime, the seasonal timing of water into the Marsh, there would be significant detrimental effects to water quality, habitat conditions and the carrying capacity of the Marsh to support resident migratory species. All of that mitigation for those impacts has to be included. And the document is silent on that because they say there are no effects.

Acting Chair Halsted commented: Water is a big problem. I am wondering what the timeframe for this permit application is. How long do we have to learn and be educated on this project?

Mr. Wilcox replied: I guess it is whose permit. As part of approving or gaining approval for this project the current action before the state Water Resources Control Board is a petition for a point of change in diversion. That has to be approved by the State Board.

Acting Chair Halsted asked: Do you know what the schedule for that is?

Mr. Wilcox replied: Well, it has started. The first evidentiary hearings begin on April 7th. There will be three parts. There will be a Part 1A which is the Department and the Bureau presenting their case and their evidence about the project and what its effects are and what the operational constraints and those kind of things and whether or not they believe it has an effect on legal water users. The second part that will be beginning in June 23rd will be all of the

plaintiffs who feel that they will be potentially injured by the project and the change in point of diversion. And they will be presenting their evidence before the Board as to why they think they are injured. Both of those sessions will probably continue for weeks if not months.

And then Part 2 of the Water Board's process will probably start in the fall of this year. That will be addressing the effects of the project on beneficial uses. That will be the fish and wildlife issues, water quality issues and beneficial uses within the estuary.

Through that process they will be considering whether or not – one of the requirements they need to consider is what-fish-need flow criteria from reports back in 2010 as required by the Delta Reform Act. Those will be considered as part of their process in authorizing, if they do choose to authorize or permit the change in point of diversion, and through that process they may actually impose additional criterion requirements on the project as it relates to water quality conditions in the Delta and the effects on beneficial use.

Part of that the expectation is that, for consideration of that element the environmental documents will have been finalized. So there will be final environmental documents for that as well as the integrated biological opinions from the National Marine Fisheries Service and the U.S. Fish and Wildlife Service and the Department's 2081 Permit assuming that we are able to make the findings to issue such permits.

Acting Chair Halsted added: So it sounds like there is hope that these processes will be completed before the end of this year.

Mr. Wilcox replied: That is the desire of the Department of Water Resources.

Mr. Coleman had a question: Part of the issue has been flows clearly and the impact on the Sacramento River. If more storage was put in place in California to take during the winter months and put in and allow more flows through the Delta and the Sacramento River in summer, how would that impact the flows in the fisheries if you are having more conjunctive use versus what we have today? Has this been looked at?

Mr. Wilcox answered: That is a big question and that is a whole sequencing question of when do you consider what and in what relationship? Can one thing move forward without considering something else? The WaterFix process has attempted to move forward based on its operations and how it operates. Its operations in the future could and would probably be changed by other things. Many would argue that you can manage the system better but I don't know that that has been demonstrated. That needs to be demonstrated to the California Water Commission before they will provide funding under Prop 1 for any kind of project.

Mr. Bobker commented: There is also an assumption that we need to explore a little bit and that is that intuitively most people would say it makes more sense to take water from when it is really wet and we have a surplus and then move that water to where we have a deficit and improve water quality and fisheries protection.

The reality is a little more complicated because in this highly variable estuarial system aquatic species generally contract during drier conditions and their populations grow during wetter conditions. And there are enough wetter conditions so that they grow more than they

contract. What we have done in the last half century is, we are making the drier conditions so bad that as the populations contract they get so small that high exports and high diversions in drier years threaten them with extinction.

But we are also beginning to remove the peak flows in a lot of the wetter years; not the very wettest years but in the majority of wetter years. As we improve our ability to attenuate the peaks what we are doing is constraining the ability of populations to rebound from bad conditions.

While I think there are opportunities to skim surplus water and use that in a smart way, we have to be really careful about how we do that because what we could do is create a condition where the ability of populations to be healthy is completely removed. And then you have to have EAS-centric intervention all the time because the populations are always at levels at which they are vulnerable to extinction.

In thinking about that we need to think about, how do we actually provide wet-year flows a lot more than we do now. And by wet-year I mean the middle in wetter years and think about where the opportunities in the very wettest years to bank more water. That is a more fruitful way to approach the problem that we have.

Acting Chair Halsted added: I am concerned and I do not know what to do. But here we are and I appreciate all of you putting your information on the table.

Chair Wasserman returned to the meeting: I apologize for having to step out. I understand that it has been a vigorous discussion and we have adjourned to a Committee. If there are no other critical questions we wish to thank the panel and adjourn the Committee.

Adjournment: The Committee meeting was adjourned at 4:21 p.m.