

U.S. EPA
State Climate and Energy Technical Forum
Held in conjunction with
Local Climate and Energy Webcast Series
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2:00pm EST

Operator: Good afternoon, my name is Tina and I'll be your conference operator today. At this time I would like to welcome everyone to the EPA Webcast series of Climate Change Adaptation Issues Conference Call.

All lines have been placed on mute to prevent any background noise. If you should need assistance during the call, please press zero and the operator will come back online to assist you. Thank you. Ms. Miller, you may begin your conference.

Julia Miller: Great, thank you. This is Julia Miller from U.S. EPA and I have Emma Zinsmeister here with me. We are from the State and Local Climate and Energy Program.

Today we are going to first hear from Terri Cruce and she's going to talk about different frameworks for climate change adaptation planning and implementation, then we're going to hear from Kurt Malchow from the California National Resources agency to get a state perspective, then we'll move on to Mikaela Engert from Keene, New Hampshire for a local perspective, and then at the end we'll take Q&A.

To keep background noise down, everyone is going to be muted throughout but you will be able to submit your questions in writing.

Most importantly, today's agenda, presentations, additional links and background information are available at these two links. I know these resources are posted currently at www.epatechforum.org and they should be

posted within the next couple of days at <http://www.epa.gov/statelocalclimate/web-podcasts/forum-by-date.html>.

After we receive the transcript and the audio recordings from today's webinar, we will post everything on these two websites, as well.

If you have questions you need to submit them through the question pane that you can see on your screen. We're going to compile these and then during the Q&A session we'll go through and answer as many questions as we're able.

Next slide. If you can specify the name of the presenter you'd like to address your question to, that would be really helpful, and then when we're done if there are questions that we didn't get to, we will try to compile those and get those answered as best we can and get them back to you.

Next slide. At the end of webinar there will be a brief survey. This is to help us figure out how to serve you all better and address topics that are of interest to you, so I would really encourage you, if you're able, to answer the questions at the end.

Next slide. I'm going to talk briefly about our program here at EPA, the State and Local Climate and Energy Program.

We help states and local governments reduce greenhouse gases and criteria pollutant emissions using clean energy strategies, which we define as energy efficiency, renewable energy and combined heat and power. We also provide tools and resources to help folks look at the other benefits besides environmental benefits.

Next slide. This is a screen shot of our website. We have tools and resources, guidance documents, case studies etc. including information on adaptation.

Next slide. I want to talk for just a second, about the State Climate and Energy Partner Network. If you're interested in signing up you can go to the link at the bottom of this page. If you sign up for the network you get a weekly summary of news and activities related to climate and energy. There is

also a listserv, and finally we work with folks to get more feedback on topics that are of interest for webinars.

Next slide. On the local side of our program, we offer a number of different resources similar to what we have for states to help promote energy efficiency, clean energy, and climate mitigation. We have several documents in our climate energy study guide series that cover a range of topics, including how you can design and implement programs for climate mitigation.

We have a number of webcasts throughout the year similar to the webcast that we are having today and we also are showcasing case studies from across the country through our Climate Showcase communities grant program.

All of these resources are available at the link at the bottom of the slide and we encourage you to access them for more information.

Next slide. In addition to the local and state programs our group also offers the Urban Heat Island reduction program. This program specifically can help reduce impacts from climate change.

The heat island itself is microclimate, where densely urban centers can be anywhere from three to twenty degrees hotter than their surrounding areas, and through this program we've had the opportunity to reduce temperatures and address public health through medium and long term planning using specific types of infrastructure.

So, for example: using trees and vegetation to increase shading and therefore cooling, using green or lastly using cool pavements.

To get more information about these particular heat island mitigation strategies and learn more about the heat island effect and how it impacts public health and what you can do to prevent it, please check out the website www.epa.org/heatisland.

Next slide. I mentioned a little bit earlier that we have several resources on adaptation on our EPA webpage and the links are here again, and for those folks who maybe didn't participate on last month's webinar, today's Webinar is the second in a series of three.

Last month's webinar was on climate impacts and risk communication, and actually we already have all the resources from that posted online at the link I provided earlier. And then next month's webinar will be on federal resources and support for climate change adaptation and the registration link is shown there as well.

Next slide. These are other resources that we thought you all might be interested in, including a report from U.S. EPA and from other organizations and agencies, so I would really encourage you to go look at these when you get a chance.

Next slide. And finally here is our contact information and once again at the bottom if you're interested in signing up for our state and local climate and energy lists you can do so through the link at the bottom.

I'm going to turn it over to Catherine Morris from the Keystone Center, who is going to be our facilitator today.

Catherine Morris: Thanks Julia. Let me introduce our first speaker Terri Cruce. Terri served as a Senior Advisor to a number of national nonprofit institutions including the Pew Center and Global Climate Change, and she has also worked with the Georgetown Climate Center, Applied Solutions, and the Western Governors Association.

She has coauthored a couple of studies under the Pew Center one, "Adapting to Climate Change: A Call for Federal Leadership," and another she authored "Adaptation Planning: What US States are Doing."

So both of those hopefully will be resources she'll be drawing on as she gives you an overview of what state and local governments are doing, what types of frameworks they've been using to do adaptation planning, and giving you a little bit more information about how they're mainstreaming that into their other services. So I'll turn it over to you Terri.

Terri Cruce: Thank you Catherine. So we often hear the term uncertainty being used in the context of both climate change mitigation and adaptation, and this pertains to uncertainty about the effects of greenhouse gas emissions, the timeframes for policies to make a difference, what thresholds will we hit a point of no return

or irreparable harm, what is the level rise expected to be in this location or that location or precipitation levels and so on.

And I just want to tee this up by saying that adaptation planning and methodologies or frameworks that we already have available to us today enable the planning and the implementations of projects to ensue by accepting uncertainty into the process.

And the key here in this quote is taking into consideration the range of possible climate futures, and I would go further in expressing the need to consider the range of possible futures in general in your area of responsibility including the climate futures.

So according to the Pew Center and Global Climate Change, 33 states completed recent climate action plans to address greenhouse gas mitigation, while 13 states have started or completed their first state adaptation plan or framework. I just want to call out Maryland here that's in dark blue because they're indicated as complete.

Maryland finished its first phase adaptation planning effort in 2008 and that focused on coastal areas and sectors impacted by sea level rise and coastal storms.

However, they're now in the process with a phase two planning effort focusing more on inland sectors such as agriculture, forestry, public health, land use, water, resource management, and they just present a great example of what adaptation planning is all about in the sense of it being an iterative ongoing effort that it's not a one-time plan and you're done.

These are a list of local governments that have initiated adaptation planning efforts. There tend to be, two main pathways for initiating local adaptation planning, and I'm sure Mikaela will talk about this later. But in general, it typically seems to initiate where there are efforts already under way like mitigation planning or sustainability efforts, or can even stem from a single person or an Agency faced with addressing an impact such as flooding or heat waves, and through the research efforts, making a case for a broader initiative.

And I just want to make a note here that there are a number of sector and impact specific adaptation plans and projects on the ground that are occurring at the state and local levels independent of these comprehensive adaptation plans that you're seeing here from both the state and the locality.

In 2007 The Heinz Center released a report that compared eight adaptation planning guide books and frameworks that they felt were applicable to western countries.

Two that I'll highlight on here, one is the climate impact group out of the University of Washington in partnership with King County, Washington and ICLEI. They created a guide book that I think is rather seminal that has been utilized by many state and local governments since it came out.

And the other one I would highlight here is UK SIP and we'll come back to that one, but those are both two that I would point people to. And even though this survey was done three years ago, and since that time most of these have been updated, you can see the variation in these check marks where there were gaps, where there were strengths and weaknesses across the different these comparison criteria and use that as a guide for maybe what you're trying to do and where you're looking for some support.

But again many of these have been updated. A lot of the areas have been updated where there were gaps. Specifically I can speak to that in terms of the UK SIP one and I can tell you that the ICLEI guide book is currently being evaluated for an update based on local government feedback.

This is a list of just four of these top four planning frameworks that have all just come out in 2010 and one is coming out in 2011.

The first one here is the Center for Climate Strategies, they've helped over 20 states with climate action plans primarily focused on mitigation. However they did work with a few states that chose to put their adaptation planning efforts in with their mitigation planning efforts like Alaska and Florida. And they're publishing a guide book specifically targeting US states that is due to come out in early 2011 that you may want to know about.

And then ICLEI mentioned here again. They have a suite of tools to support adaptation planning by local governments, and they just announced their new climate resilient communities program and a new online Adaptation Database And Planning Tool called ADAPT. And they've put their five-step planning methodology into an online tool for users.

There are also sector and impact specific guides that are coming out and specifically the one I've listed here -- NOAA's office of Ocean and Coastal Resource Management -- just released this planning guide for state coastal managers. And you can see the Drought Ready Communities organization released a guide for community drought preparedness.

So what we're seeing is that adaptation is becoming better understood and this is particularly true from a governance level. And there's an increasing demand from members and from constituents for more information and more tools and more direct support, getting into specifics in terms of impacts or sectors where you have interests and the response occurring, and that's great.

What I've listed on here also are some decision making frameworks. And so in parallel with this trend what I'm seeing is more demand on the next and further down the spectrum in terms of not just helping me getting my plan going, but helping me to make a decision as it pertains to my adaptation options, and we're seeing decision making frameworks emerge.

The one I'll mention here -- Georgetown Climate Center's Adaptation Toolkit -- that is coming out in 2011 is directed specifically at land use managers to help them prepare for sea level rise. And this toolkit provides an analysis of available land use policy responses that they're calling tools, but also helping users select amongst those potential responses for the given circumstances. And so these are just some examples of what we're starting to see and I expect to see more of this.

Because I'm not going through all of those frameworks in detail I just wanted to mention the general steps that you can expect to see in these frameworks listed here. And we're going to talk about a couple of these in more detail, but the key factor is that the frameworks are all iterative in nature. I'll show you one example, but they iterate back through themselves, they go through these steps and then at the end it calls to update the plan again. You're

continually monitoring and hopefully reporting on your results and then using new information, whether it is climate data, actual results, or trends and you're revisiting your plan.

And it's a continual process, using the best information that you have available at the time and moving forward where it makes sense to move forward based on your specific vulnerabilities, your specific risks, your specific goals, your decision making criteria that you define, and other factors such as funding and resource availability and things specific to your community or your area of responsibility.

And it's also important to note that none of these frameworks are a one size fits all and it's completely dependent on the scope that you choose to bite off and where you are and what you're hoping to achieve.

So I would encourage you to be familiar with more than one framework and reach out and get information from your peer groups as well, but I'll talk through a couple of these items right now.

So in terms of authorizing mechanisms that have been used at the state level for state adaptation planning processes, you can see here that eight of the states used an executive order and five of the states used legislation.

Both of these mechanisms are very important to provide credibility and financial and technical support to the planning process, and more importantly I would say, the longevity that's required to sustain these efforts which is so critical to adaptation given the long timeframes planning and implementation and monitoring need -- not just two years, five years but 10, 20, 30, 50 years' timeframes that we're dealing with here.

Priority focused areas: so a key step in the process is determining your scope of efforts, and what we typically see at the state level is an adaptation subcommittee or a taskforce being created as part of an overall comprehensive climate initiative, in parallel with mitigation planning efforts.

This is ideal given the amount of effort and synergies that do exist between mitigation and adaptation planning, the ramp up cost and the time is certainly a factor, but more importantly you have the cross-pollination

opportunity that you can have not just between your adaptation teams but also between your adaptation teams and your mitigation teams. I would say that more of this is needed in adaptation planning that we've seen in the United States, the need to do a better job with integrating our adaptation and planning mitigation planning efforts.

And if you think about it, there are some sectors of common interest such as transportation and land use, built infrastructure, energy, agricultural, forestry and so on, and where you can identify those synergies, there can be co-benefits that arise.

And thinking about not implementing a strategy under one umbrella, let's say it's the mitigation side, that adversely affects something you're trying to do on the adaptation side and vice versa.

So, the second point here in terms of selecting your priority focused areas is that we see that the states have typically formed technical working groups that focus on vital sectors that have been identified to be impacted by climate change, that are important to that state or that community based on economic, or cultural, or human safety and health issues.

It can be anything that affects our human systems or natural systems, and I just want to highlight a phenomenal one -- the Wisconsin program. They started their adaptation planning efforts. They've taken a very unique approach in forming their working groups, and they've created sector based working groups such as agriculture and public health and wildlife, but they also created some technical working groups focused specifically on Green Bay and one on Milwaukee. So they're large communities. And they actually created impact-specific teams -- one for soil and one for storm water management in urban areas.

And I think this is just very interesting because soil is the foundation of Wisconsin's agricultural industry, and they're seeing precipitation patterns changing and threatening. Soil is an economic industry for them and that was the rationale for a working group dedicated just to soil.

Lastly, an example using Alaska on adaptation planning initiatives: Alaska created an Alaska Climate Change Advisory Group to develop their long term

adaptation plan as part of the broader state-wide climate change strategy. But they also initiated an immediate action work group responsible for making recommendations, implementing adaptive actions and delivering progress reports on an annual basis.

And this was due to the immediate threat that existed to coastal villages from sea level rise and storm surges. And so my point in that this is a very unique process to you and your needs, and there is no one right way of doing this. You have to assess your own situation and don't feel like you have to copy somebody else. You can certainly learn from these different examples, but I would say that I would customize it specifically to your needs and your priorities.

Slide: This is just a visual to give you an idea of some of the sectors that have been covered in the state plan so far. I need just to give you a sense of where the priority has been.

It's quite impressive and I will say that not all sectors are represented here. This is a broad brush but I tried to pick the ones that had the heaviest coverage. Also, you can see that it's like infrastructure -- that could include energy infrastructure, transportation infrastructure, water infrastructure. So sometimes the labels have some overlapping meaning, in case you don't see something up here you expected to see.

Sometimes the technical working groups will take on one sector like in, California. But you know that sometimes depending on your financial situation or your expertise within your agencies or your priority focused areas, you may find that technical working groups take on more than one sector, or you may find they're just dedicated to a single sector or impact or community or population, and that's just completely your decision.

One thing I will talk about briefly here are vulnerability and risk assessments, and each of the frameworks that I evaluated definitely call for some level of these assessments to be conducted.

Vulnerability assessments help you inform your priority areas for planning. They also can help you identify viable adaptation options, meaning politically viable, financially viable, and technically viable. Vulnerability

assessment basically includes identifying what resources or systems and define how you want to define these.

These could be sectors, human built systems, communities, populations. Identifying the systems that are exposed to climate, whether or not they are affected by that climate change, and whether or not they're able to cope with the changes on their own. The technical terminology that you may hear is "the exposure," "the sensitivity" and "the adaptive capacity." And it's those components that determine the vulnerability of the resource system.

And risk assessments are then used to help prioritize these vulnerabilities, and can also be used to help prioritize adaptation options for a range of potential scenarios that could occur, and the current frameworks that I've seen (and I apologize I don't have an example this year) but they typically use a matrix approach and consider the likelihood or the probability of an impact occurring and the consequence of the impact should it occur, using kind of a high/medium/low type approach and helping you rank your vulnerabilities and your decision making process. So the risk assessment models can be used in a number of ways.

But the frameworks and the consulting organizations out there do vary on their approaches to these assessments, and I would again say that to become familiar with the tradeoff associated with the different approaches, and I just want to mention that there are a lot of intricacies within this area.

It's a much longer discussion, but there are tradeoffs between specific actions to reduce vulnerabilities and going after what would be often times called "low regret" adaptation options where, you know you're doing those things and you're getting started with those things that you would do otherwise. They're just good decisions to make in general and irrespective of climate, but then when you put climate in it, it makes even more sense.

And yes, there are different strategies that can be used in deciding where to invest your dollars and what adaptation options to take on, but I just would say that there are always going to be tradeoffs in some of those decisions, and so these assessments are designed to try and help you get through those different tradeoffs.

Catherine Morris: Terri, I know you have to leave to catch a plane and we wanted to at least grab a few minutes of your time to answer questions before that, so I just wanted to check your time and make sure you have enough time left, thanks.

Terri Cruce: Yes, so I'm wrapping up right now. This is just a sample decision making framework so it is very high level; it doesn't go into the risk assessment, but this just gives you a visual image of the iterative process that I was describing.

These are some key elements of the frameworks that we see and we talked through a few of these already. I think one that I would highlight that I think is important is to have an oversight entity for adaptation. And this applies whether it's a state or locality or with multiple technical working groups. But having an oversight group that can push this beyond the planning process, beyond the planning phase itself, and that can still persist into and beyond the implementation and monitoring phases and provide continual oversight for the development and actualization of the plan.

Lastly, I just want to bring up one point to cover the concept of mainstreaming. And mainstreaming in this context is considering adaptation in your existing planning processes that are already affected by climate. You can apply this more broadly to be the consideration of the climate change in general picking up both mitigation and adaptation.

But in this context what I would say is that, you know the benefit is that it will increase the awareness of climate change within your organizations, within our agencies, you know NGOs, the private sector and our communities.

It helps to build the awareness of our current and protected impacts. It also builds on the knowledge and expertise that you already have and adding climate and it's just another factor that you are considering on top of the other things you're already considering in your planning process, the other variables.

So if you're dealing with a water supply issue and you're already developing scenarios assuming population growth, then you're now considering population growth and different climate change scenarios to come up with your different viable adaptation options.

So this simplistic example, but I just encourage people to consider this and there's a report that was released. I'll put it in my references a report called Anticipatory Governance.

But the downside with mainstreaming approaches for adaptation is these do not promote cross agency or cross organizational collaborations by themselves.

They won't necessarily identify all the risks and vulnerabilities that exist or create the best solutions in all cases especially if an impact crosses sectors or geographical political boundaries, or jurisdictions and for this reason it is a great, it's wonderful when it's part of a comprehensive planning process where it's one of many recommendations of actions for agencies to go to.

And these are just some examples that of today of plans that we all see and know about where adaptation could be mainstreamed into these and I've put some examples down where team speaking after me, but team is the very first community we know of to have incorporated adaptation into their community master plan, and that is all I have.

Catherine Morris: Thanks very much Terri. That's a great overview and we have a ton of questions coming in, and I know Terri unfortunately had an unexpected trip she had to make and has to leave on a flight, so she has agreed to stick around a few minutes to answer some questions that we've got coming in, and let me just throw a few at you quickly.

One is the question about monitoring and whether or not local governments and states should be thinking about an integrating monitoring including setting base lines, setting up tracking systems as they're doing their adaptation planning or that should be something that they just wait and do afterwards.

Terri Cruce: I'm sorry we had to jump over that step and I didn't have detail on this. But absolutely, earlier on in the presentation in the general steps that we see there are steps that call for setting goals, and monitoring systems are important. There are kind of two different types of monitoring systems.

Monitoring systems in the sense of what you see, let's say you're monitoring your wildlife or you're monitoring your public health. Air quality would be another example.

So there are those kind of technical monitoring systems that are very important if you have put in adaptive strategies that you want to monitor the results with, you know wildlife results to see if you're affecting positively their ability to adapt.

There is also the kind of monitoring system in terms of monitoring the adaptation plan itself, and monitoring the planning process itself and having a way to come back and see if your plan was actually effective.

So it depends on the terminology that's being used here, but yes it's very important to integrate it from the beginning, and there's one of the planning frameworks that I evaluated that actually calls for metrics to be defined in the key sectors or priority areas that you choose to evaluate, so this is a longer discussion, but the short answer is yes.

Catherine Morris: Thank you, and another question was: In your presentation you did mention that the importance of integrating adaptation and mitigation. Could you say a little bit more about how you would integrate adaptation and existing emergency response planning or risk management efforts at the state and local level?

Terri Cruce: That's a great example of mainstreaming, and let me see if I can go back here. So if your focus is just that emergency management plans could, and I can't remember which community it was, if it was Ohio.

I was on a phone call just recently and one of the states was talking about how they had this large precipitation event and I think it was the Ohio floods a couple of years ago. They realized that they had not updated their emergency management plans to consider how to get people across from one part of the community to the other that got flooded out.

When I was talking about mainstreaming you do have the ability now, and it's one of the reasons one of those very low regrets, you know robust adaptation strategies that you can pull the trigger on without much investment

that allows you to update your plans and that way if a certain scenario occurs you actually have the plan on the shelf to invoke that strategy.

And so it's not something that you invoke unless the climatic events occur. And so that should be done and can be done without necessarily having a broader state-like comprehensive adaptation effort. I don't know if that answered the question.

Catherine Morris: I think you hit it and one of the other questions was whether or not your comment that mainstreaming increases institutional awareness has any kind of empirical evidence behind it?

I think the participants are concerned that mainstreaming may in fact be a way of diluting attention to climate change as the main problem.

Terri Cruce: So, the latter point can absolutely be true and that is the risk and that is one of the downsides of presenting this. So on the one hand, and that's why I say it's great when it's used as one piece of a comprehensive planning effort, and I agree with the comment that it can over simplify what's needed because it is important that these plans do consider climate, but they alone if you were to just go do one of these things.

Imagine if you are within an agency and you have responsibility for something that has implications. Let's say you're within a state agency but it has implications with your counterparts at the local government, your counterparts at the federal government, and your counterparts within the private sector. If you're the only one updating your plan, and tell your public, but if those around you don't, and are integral to more comprehensive strategy and more comprehensive solutions, then you're missing pieces. So there is absolutely a risk of mainstreaming when it's not part of a more broad comprehensive integrated effort.

Catherine Morris: One of the questions is: As you're doing the type of risk assessment that state and local governments would need to do, you need obviously a lot of information about forecasts, temperature precipitation, sea-level rise. So the question is, is there a clearinghouse for this kind of information at either of the state or regional level?

Terri Cruce: That's a great question. So there are a number of resources available to people, and specifically on the climate impact side, I would point people to the USGCRP Website - that's just you know the one that came out from the USGCRP that provides the sector and regional-based climate change impact information, the most recent for the United States that we have, and it goes down to a sector and it divides the United States up into key regions.

There are more - there is more information that is needed that is even more granular than that and that is available as well. I do work with the Georgetown Climate Center. One of the projects that we're working on right now is an Adaptation Resources Clearinghouse. We'll announce it in 2011, early 2011 one of our goals is to try and have as many resources as it pertains to planning, including the impacts by sector for people available in that clearinghouse.

But as far as existing ones, I would also refer to the NOAA Climate Center, the climate service site. NOAA is trying to pull that together but as far as other sectors and sector specific information, I would say that we'll try and push out an announcement when our clearinghouse is available.

Catherine Morris: On the slide that you're showing now you have the term Vtrans up as one of the transportation entities. What does Vtrans stand for?

Terri Cruce: I apologize, that's Vermont Vtrans.

Catherine Morris: And are there examples of the matrix format available online that you recommend to assess risks.

Terri Cruce: Yes. So if you go back to the slide that had the table of the planning framework, the Heinz Center table that had like the eight, just use that and go hit those and look inside and you'll see some of the risk assessment matrices that I am referring to. Also you can talk to your local government, I would suggest looking at the ICLEI one. And if you're state government like I said very soon the CCS one will be done. They both have their matrices that they use. So if you're member of ICLEI, you would have access to that immediately.

Catherine Morris: Well thanks very much for hanging on a little bit longer. There are a lot of additional questions. And Terri, are you still up for trying to respond to at least as many as you can via email. And maybe we can post those responses on the Website afterwards.

Terri Cruce: Absolutely.

Catherine Morris: We also just want to let the participants know that we are getting a lot of sharing of information and we'll try to get that posted to. People are sharing information, resources as well as some of their own experience in their own state and local government.

Terri Cruce: Well, I would very much value any resources that people want to share with us, with me specifically that we can put into the clearinghouse. That would be wonderful. So if people do know plans that have been updated to incorporate climate adaptation for instance that would be wonderful to share those if you can - if anybody on the call wants to provide us, to us we'll make sure they make into the clearinghouse.

Catherine Morris: All right, thank you very much and safe travels.

Terri Cruce: Thank you very much.

Catherine Morris: And let me now turn to our second speaker, Kurt Malchow, who is currently the Secretary for Natural Resources, and both coordinates and implements the California State Level Climate Adaptation strategy. Prior efforts included assessing restoration project performance assessments for both Sacramento and San Juan River Delta managing grants review and funding for multi-objective flood control and watershed restoration projects, monitoring ecological succession for wetland restoration projects and collecting, repairing habitat diversity data for other areas in California.

So he has a wide range of background. And he is going to share with you a lot of the experience that California has had in climate adaptation planning. So Kurt, I'll turn it over to you.

Kurt Malchow: Thank you Catherine. And I'd like to just start off just by following up an excellent point that Terri made. There is such variability that is dependent on

local situations with frameworks. And I would like to just offer our adaptation strategy as an example that will help to give perspective.

The strategy that we put out has been out for little over a year right now. So this is just a little fact sheet on it. The political support that we had was through executive order as seen in one of Terri's spreadsheet. We released it about a year and a month later in December 2, 2009. We've since released our progress report just to monitor what we've been doing focusing on some of our key strategies. And we planned to have biannual updates. This is an interim process as they all are. We're not sure what kind of support we're going to get for that but that's what we're going to be working on with the new governorship coming in.

So I just like to step back a little bit and just talk about our process -- when we were beginning, what frameworks we were developing. As with any endeavor that is far reaching, we had challenges with finding out where to start. We began by holding two key breakout meetings. One was with the executive staff of those agencies that were managing resources, that were affected by climate change, and that we wanted to go under their focus and input on. And the other one with the researchers that were involved with the downscale climate research that was being done by this time for about seven years for California. We're fortunate in having a good research background from the California Energy Commission. They've been managing what's called the Public Interest Energy Research program that was taking six or so global conceptual models and applying them to the unique characteristics of California.

So the reason we did this is because from the agencies we needed their participation, ongoing participation and from the scientists we needed their insight and guidance. We then formed working groups that were organized in the sectors and Terri had a nice layout on those and just to review that, we broke it down into Oceans and Coastal resources, Water Supply, Energy and Transportation Infrastructure, Public Health, Bio-diversity, Agriculture and Forestry resources.

And we wanted to use this as a forum for sharing the continued and collaborative participation from the agencies. This is where the executive

order was very helpful. And they also had a vested interest because they were responsible for resource areas that could be harmed by climate impacts. And what we wanted to do with the adaptation strategy is that previously the research was telling us of the degree of changes in sea-level rise and temperature and precipitation were. What we wanted to go further in was just describing what that meant and actual impact statewide. So we needed to help synthesizing the research into impacts and we hired a consultant team to help do that.

And then from there we chose to organize a strategy into two basic categories from the standpoint of actions, we could or could not take at the time near and long-term. We wanted to start the process now and to build momentum and at the same provide a roadmap for how to continue longer term of course under feedbacks from ongoing research efforts.

So the last bullet, we developed the review process for each major stage of the strategy. We did this because we needed the benefits that an open process provides such as increasing awareness through our process, expertise and of course getting support. This next slide is very oversimplified, but it was real in terms of some perceptions of adaptation that we ran into. We began our process. And the first one is adversity. Well just let me step back a little bit. To preface this -- in the past, the mere mention of climate adaptation was not always well received, at least as well as the mitigation. It's a little harder to grasp and it was a little more confusing to understand.

And this is mostly during earlier efforts. Adaptation was often viewed as a way to acknowledge impacts without having to attribute them to greenhouse gas emissions, but that began to fade as more science came in showing the prevalence of impacts.

Then around the time we started putting together strategy, we did run into colleagues that feared that if we adapted to the climate impacts, there would be a reason not to mitigate. We would artificially maintain an unsustainable status quo for emissions. But after a while research came in, most notably by this graph, (this is put together through one of the pure assessment reports) is that climate change is going to persist, climate impacts are going to persist no matter what the emission scenario is going to be. This shows sea-level rise.

And in the solid box that I have here, it shows a pretty tight grouping of all of the scenarios.

And this is only the beginning, and it projects at the end of the century. But no matter what scenario even in the best, like this shows that even if we could miraculously completely curtail emissions, we would still have impacts. Also we were starting to get a taste of what it was like to have a reactive relationship to more intense issues through climate change. We've had an unprecedented heat wave in 2006, this is part of the entire North American heat wave that killed at least 160 people in California alone.

The inches of sea-level rise are shown by this portion of the graph. And also we have spent in two consecutive years, over \$0.5 billion fighting unprecedented fires at a time when we just do not have the budgets to accommodate that.

Also the publication 'The Future Is Now' came out just when we were starting our adaptation planning process. Researchers and agency staff are beginning to produce documents that were summarizing the research and providing good background explanations of what the research means. To explain it little more simply, we borrowed heavily from The Future Is Now, because that makes the theses that we are experiencing climate impacts and its projected to get worse.

So we borrowed on this to put together the messages for, the messaging that we were going to provide in our adaptation strategy. So by this, we're clear on what key points we wanted to make in the strategy and they are summarized here, that climate change impacts were already occurring and they're projected to get worse. We borrowed a key statistics from a study that was put out by UC Berkeley and an organization called Next 10 that studies economic issues in California.

They projected out of the \$4 trillion total of California infrastructure \$2.5 trillion of that is projected to be at more risk of climate impacts. We also wanted to talk about how we have an opportunity to reduce these risks and build resilience if we act now. And we already have regulations, the California Environmental Quality Act, that make us take into consideration any impact

on a project before considering that project that includes conditions exacerbated by climate change.

So with these points we were then, we then had a better sense of how to structure the adaptation strategy. We opened up with the chapter defining the climate impact problem state and identifying the adaptation component, talking about how it's important, it's coequal and necessary with mitigation to address climate change. We had a chapter synthesizing the peer research into climate impacts. We base those on the same emission scenarios that A-one being the highest emission scenario, B-one or two being the lowest.

And then from there we'll make key recommendations, we'll provide those in our executive summary. And that's just to give a sense of overall direction for how we're going to start the process of adapting. And then the rest of the 100 pages of the strategy consist of those chapters broken down by sector where they go through the same processes -- those four top bullets but they break them down into their sector resource areas.

So in a nutshell we wanted to focus on the science that we had so far. What are the impacts statewide at this time from the science? What overall strategy can we have? And we also wanted to have some actions like Terri was talking about during the Q&A session. No regret strategies get as close as we can to that so we can begin engaging where we could.

For funding, we basically took whatever we could - most of our resources were from existing agencies. This is basically at this time, all we had time and resources for was to make a state plan primarily from state agencies, but we did received input from other sectors, through our public stakeholder process. But we borrowed heavily from other agencies specifically in those sector resource areas. They either were above and beyond their existing responsibilities or they changed their responsibilities. For example my position is borrowed from another agency and I work in person with Natural Resources Agency on this issue.

But we did receive, to hire our consulting team, a \$150,000 allocation from the money from AB 32 legislation for the state. They realized how important our information was for their process. They understand how inter-tied our processes are. So they did give us some funding. And then we took

resource from other agencies wherever we could, for example our Energy Commission has excellent IT staff. They host our Website. Department of Water Resources has their own in-house publication office; they proofed and printed all of our copies. And wherever we can get a local agency or state agency for example with a hearing room and the associated IT staff, we'll use that as well.

So it's been a little over a year since we released the strategy. We spent most of our time and energy making the research findings relevant. We're using four basic tools, one is the Vulnerability Study. This is the same research team that has been working for the past eight months or so. They're picking up from our adaptation strategy what we describe as statewide strategies. They are drilling down to regional areas. There is a study on Los Angeles area, Bay area with sea-level rise issues, and Central Valley with weather and extreme heat.

And also for the Policy Guide, the next item there, we are teaming up with the California Emergency Management Agency. They have an interest in statewide planning at the local level to minimize emergencies that are exacerbated by climate impacts. So we're plugging into that, and we're going to work together to put together procedural documents that give some general guidance as per the individual conditions to the community on how to begin to addressing climate change.

We're also working with Google.org and UC Berkeley to put together what we're calling a CalAdapt Tool. It is where you can go in the Web and use an interface where you put information such as an address or a landmark and it will provide several key pieces and information. One is what are the expected impacts; two, a description of what those impacts could entail; three, is linkages to the resources where we got the information on those impacts.

And finally we're contracting with the National Academy of Sciences to develop a regional sea-level rise study. We're working with the states, the other western coastal states, Oregon and Washington, as well as federal agencies on a sea-level rise study that puts into more perspective the polarized cap melting and geotectonic influences on the states to again drilldown to the regional level.

This all for us is a very valuable and provides the tools that local communities need to begin planning because that's where most of the work has been done. We're coordinating climate adaptation and mitigation mostly through agencies such as California Environmental Protection Agency that's tasked with implementing the climate mitigation legislation and their program, their associated programs. We were sitting down with them over the last year just making sure that mitigation actions benefit and don't conflict with our adaptation strategy and vice-versa.

We tried to minimize any surprises by having them engage in our working group sessions when we were drafting our strategy. But we've continued that process. And we're also involved in regional efforts, for example we're working with Western Governors Association on how to get western states and their common resource issues onboard to address climate change. Governor Schwarzenegger has his third annual regional climate mitigation effort, this is Global Climate Summit. For the first time he had an adaptation segment to it and we released our next board down there. We released the first year progress report.

We wanted to do that before the governor's last term as this is done under his support. And we also wanted to just assess the key recommendations that we put out in the executive summary. And then finally funding. We spent a lot of time this last year getting the contracting done for the four items that I mentioned in the first bullet. So now that we have a plan, we're of course looking at how to, where necessary, habituate adaptation into our organizational plans and activities. When engaging agencies that are planning for adaptation in discussion, a lot of times we inform them that many times the adaptation is looking at existing procedures for which our organizational structures are already setup, but with a different perspective.

It's not an add-on as many have perceived or a diversion from what they have to plan for in their general processes. Agencies at all levels usually have some kind of planning or visioning document that they regularly review, that affects all future activities. We've explained how these can be updated and adjusted with climate impacts in line. And that's being done to quite an extent. We - for example our Department of Fish and Wildlife has a wildlife action

plan. The Department of Water Resources has a water plan where they were addressing climate adaptation before we were.

So a lot of existing resources out there: We were able to provide stimulus funding through an organization called the Strategic Growth Council. This council was set in place through state legislation and their task was coordinating statewide activities that improved conditions such as public health, infrastructure and natural resources in the face of the expected population growth that California is going to experience. The council wasn't setup per se to implement climate adaptation but over last year we were meeting with them and convincing them that climate adaptation should be a key component to their work. And this year they awarded about \$23 million in grant funding for local planning specifically to local plants that seek more sustainable means in forms of transportation, park resources and other aspects.

This was very important for us to set the institutional foundation on how the state can better adapt. This is important and this is at the level where most of the actual work is done. And my next bullet down there, vertical integration, that's kind of a geographic buzzword. Right now I just wanted to explain how agencies are getting better and better at planning with other processes in mind. Cities and counties are following regional planning. And regional planning is looking more at states' and federal informational resources, as well as being aware of funding sources, which leads us to the next bullet.

This feeds into our need to provide that information. Assessment information gives local communities information that they need to know to address the impact at local levels. For years, we've been emphasizing watershed level management. It's been stalled effort here, but is effective in grouping climate impacts into manageable geographic units. We're trying to implement watershed level plans. We do have a lot of counties that have what's called Coordinated Resource Management plans. And for legislation, I am not sure what approach to take on this yet but it's going to be more and more prevalent.

At a hearing last year, we were asked by a state legislative committee about adaptation and what the possibilities were to operate that through

legislation. I had no answer at the time because we were just developing our strategy. And we had the concerns that adaptation through statute cannot accurately reflect the individualized nature of the problem, especially at the regional and local planning level. But that could change and we intend to remain in contact with our state legislature. Perhaps they can do some more generalized things such as allocate funding.

And I probably went a little bit over my time but hopefully I'd be happy to address any questions that you have.

Catherine Morris: Thanks. We do have quite a few and you've highlighted a lot of the public private partnerships that have enabled you to do, to accomplish a lot more. So some of the questions are regarding some of the tools you mentioned. Specifically your partnership with Google and the tools that you mentioned that Google was developing. Is that going to be available for other states? And do you know if they're planning to expand that?

Kurt Malchow: Any one could access it; it will be on the public domain this coming spring. We've planned to have that populated with temperature and precipitation data, so they can work on those two and then we're going to add sea-level rise as the National Academy of Science study comes in. Right now, it is confined to geographical areas in California, because it's feeding half of the state level research. But we would be happy to engage and make that a more widespread tool especially if it shows demonstrated efficiency in planning efforts. Say you're a planner for a city or county and you're asked to put together proposals for including adaptation at your existing plants. With this tool, you get a good sense of what impacts are felt and tie that in with what resources you have in your area. And in a short amount of time you can have a pretty good assessment of what's going to happen. And you can have that based on the research that we've been working on for about a decade now.

Catherine Morris: Thanks. I want to be sure we have enough time for Mikaela to both cover her points and answer some questions. So I'm just going to ask you one more. Both you and Terri mentioned the importance of integrating adaptation planning and mitigation planning are not conflicting. I wondered if you could talk a little bit about ways that they may conflict. What are some examples of that?

Kurt Malchow: The best example I can have when we were discussing this a very, distilled version of how you could have adaptation conflict with a mitigation measure. Say you have a heat wave and adaptation measure is turning on your air conditioner, that's not a good mitigation strategy because that basically is using energy resources that at this time uses resources that emit into the atmosphere. Likewise a co-adaptive measure for that same impact would be to plant a lot of urban trees, so you would have not only the cooling, but you have the carbon sequestration.

So it's just going through those mitigation and adaptation strategies together just to make sure that they are beneficial from our experience. At the majority of the times they have been co-beneficial.

Catherine Morris: Thanks a lot Kurt. And I am hoping we can get back to some of the other questions that are coming in for you at the end. But let me turn it over to Mikaela Engert who is a City Planner for the City of Keene. She is in a great position to give you some of their experience from the local government level of adaptation planning. This is Keene, New Hampshire. She has been working on their climate action planning process and is also the Project Manager for the community's master plan update process which is underway right now. And in both her education and professional experience, she is really focused on sustainability issues that cover everything from food security to energy and also a very important aspect which I know some of you have some questions about, which is the collaborative community participation process that can, is a critical part of adaptation planning. So Mikaela, I'll turn it over to you and I think we have your slides ready to go.

Mikaela Engert: Hi everyone my name is Mikaela Engert, and I work for the City of Keene as a City Planner. And I'm here to talk a little bit about our process today. I've got a lot to say. I've got a lot of slides. So I'm going to move quickly, as quickly as I possibly can and hopefully we'll have some time at the end to take some questions. Where are we? Who are we? What are we doing? This is kind of what I hope to give you a background on: A little bit about what we've done both on the mitigation side and the adaptation side; talking about what we're doing to make it stick, to make it normal, make it real, make it habitual. And then also give you a little bit of background on what works for us, what challenges we might have faced, just some general advice. Just in case, if you

don't know, we're a tiny little community in the southwest corner of the state of New Hampshire. We have a population of just fewer than 25,000. We are pretty much a strong council with mayor, City Manager form of government. We have 15 city councilors which is a quite a number for a community of our size.

And we've actually been working on climate change since even earlier in 1999, I would say early 1990s, but officially 1999 - 2000. And that was when we joined ICLEI, local government for sustainability. We became one of the first communities in New Hampshire actually to take up the topic of climate change, to develop a climate change action plan, set greenhouse gas emission reduction targets, and do that sort of things.

And we have a City for Climate Protection committee. We borrowed the name from ICLEI's CCP program. And that group is really the oversight group for what is now being called our climate plan and that includes both mitigation and adaptation. So here is another theme, you've already heard in the previous two presentations a lot about mitigation adaptation, aligning them, putting them together mainstreaming them that sort of thing. But you've also heard about the recommendation has some sort of oversight committee to keep things moving. And that's what our CCP committee provides for us.

And just to give you an idea, we've got 33 that have been implemented to-date and we've got another 40 that are either being assessed for feasibility or are in progress right now. So that's huge. We're also in the process of taking a look at our greenhouse gas emission numbers again to provide an update, measure our success in where are we in terms of hitting our reduction goals.

And we also want to be able to step back and renew focus. And there is a reason for my focus on mitigation. Because of the success that we've seen in the mitigation side of things and also combined with the fact that we were heavily impacted in 2005 by a major flood event here in Keene, ICLEI approached us to become one of their first pilot communities to go us through an adaptation planning exercise, through their Climate Resilient Communities program.

And really I guess the take home point from a lot of this is that the work that we've been doing on climate change over the last decade or so really goes

to the conversation that we've been having at the community level. How it's evolved overtime, how it started out maybe talking about climate change or how it started out talking about economics and saving a penny or two or three or maybe a couple hundreds.

There is also a much larger conversation about community sustainability. I am going to highlight a little bit about the connection between that work and then our master plan. So why should we respond. Four things, you guys probably already know this, so I'll hit this really quickly. It's definitely in our best economic interest. We all have budgets that we need to justify in some way why we are spending the money, the way that we're spending money. And in particular now given the political environment that we're all operating in.. We get questions daily about this especially since we're starting our Climate Resilient program update.

We know the details of what's happening on the ground. We know it is happening; we know what our community needs; we know what's in their best interest. We could also respond like we are the first responder, regardless if it's a federal or a state program or even a local program, we're going to hear about it first, whether it's working, whether it's not -- that sort of a thing. And then also we're positioned to meet the needs better. We've got local experts, we've got information, and we've got flexibility and capacity. As lot of motivation, you know to address a lot of these issues that perhaps larger forms of governments cannot do.

And I am not saying that other levels of governments couldn't act. They should but as you probably even read in a lot of the papers lately given what's going on in Cancun, local government really has a very, very large role to play in a lot of this work. So how do we get started? As I mentioned we joined ICLEI, we created a CCP committee. We did our inventory stuff. And we adopted our Climate Change Action Plan in 2004. And we established an initial reduction target of 10 percent below our 1990 levels.

And so that sets the basis for the conversation. Here is in general just our reduction target so you can see we have two, we have a community side target as well as the municipal side target. You can see the numbers of what we need to achieve in order to reach those by 2015. It's a pretty tall order you could say. Some of the measures that we've done to-date, biodiesel, methane to

energy, add our weight facility, Micro Hydro installation, recycling programs. A lot of these, you'll recognize they seemed pretty simple, they gave us easy wins. Energy upgrades, putting some of our police on bicycles, etc.

We've also done a lot of bigger more programmatic things providing task breaks for folks. Putting in a round about, that's the transportation side sort of a measure that gets at reducing idling time. I don't know if it was noted earlier but the 10 percent challenge program for small businesses is to encourage them to reduce their emissions and save money at the same time. So we've been doing a lot of different mitigation side of things and its working, we're seeing savings, we're seeing you know these things become as institutionalized within our organization and also within our community. This is just some example of some of the stuff that we're seeing.

And this is some of the stuff that's coming up in the pipeline. So even bigger programs and projects that will address mitigation side of things but as you know that some of you are probably going well, that's mitigation by strategy but again it also might have an adapted component to it.

So how can we make buildings more energy efficient, as well as make them more capable to handle changes and precipitation and snow load. And now to get finally to the CRC stuff, to the climate adaptation piece of it. So again just to iterate, we were asked to test this program as part of the ICLEI's new Climate Resilient Communities effort. And that was sponsored through NOAA. And really what that does, it complements the CCP program. And again, climate mitigation and climate adaptation, they're really just two strategies. And our approach has been now to really combine that conversation within the community. And ultimately of course the goal of that program specifically is to improve long-term resiliency.

So how do we go about it? What did we do? Again to reiterate some of the stuff that Terri had said, we went through a process where we delivered a resiliency study, where they said what are our vulnerabilities and opportunities and created goals and ways to achieve those goals. Most of the effort went into as per that creation of the plan. We created a committee. They were made up of all of our department heads. And they really spent quite a bit

of time together over six to eight meetings max, for half a day or full day. Communities, large community stakeholders were also involved.

And there was lot of background planning that went into it by myself, ICLEI's staff and an intern that we had hired. So that when we got those folks into the room because they were so incredibly busy. They're being pulled a million different directions all the time. We wanted to make sure that we use their time effectively and efficiently and that we achieved what we needed to achieve to make sure if the process is moving forward. So if you go through a ranking process to assign to different sectors that would be difficult. Let me tell you just about how incredibly cerebral that whole entire process was.

It was some days you could just see it on people; they would get a little bit discouraged. Because when you start talking about adaptation, you start seeing how everything connects and you push a little bit over here one side, it kind of comes out somewhere else in a different slide. So it can be a very difficult kind of conversation to have especially when you're trying to deal with things with imperfect information or knowledge or lower level or amount of information then you're typically used to operating in, because remember this is dealing with future states.

So we did go through that entire process as well, and that was a little bit difficult. But I'll tell you a turning point for me was when our police turned around one day and we were asking the question what kinds of things you have to think about based on a certain impacts. And we were talking about the heat index and my chief of police turned to me and said you know what, she said, what do people do when it gets really hot out. And I said I don't know what people do, you go swimming? But I wasn't thinking of it through his eyes as a chief of police. His response was that people drink more.

Well for him what that means is that he has to pay attention to the number of people that he has out in the street. What kind of patrol resources he is going to need in terms of equipment because generally when people drink more they tend to be a little more rowdy.

Some of our climate impacts: Here are some of the impacts that we're expecting, as I mentioned earlier we have a history of flooding. That's a really big thing for us and again that's what drove this whole planning effort.

Changes in snowfall patterns, heavier weather snow, more ice, and bigger storms. What does it mean in terms of changes in plant and animal species?

Here is a good example someone had asked earlier about one of the charts looking at how to assess vulnerabilities. This is generally both qualitative assessment and that's kind of what we did, so we didn't have a lot of hard numbers available. We used to use Union of Concerned Scientists information, and information from NOAA. We tried to boil it down to our regional areas, so we could get that to the State of New Hampshire; we could get down to roughly southern New Hampshire. But then we kind of had to take that information and match it with what we were seeing, what we were observing.

But this will just give you an example of what it's like to begin to deal with a certain level of uncertainty, and how do you assess your possibility of impact. And as a smaller region, dealing with that kind of information that we had was ok for us. We were comfortable not having it downscale to the point where it's raining on our own backyard. Other communities might find that to be a little bit daunting. But you also may have different resources available to you as well. So keep plugging away and trying to find those resources when you can.

We've created three different sectors: the build environment, the natural environment and the social environment. Specifically I wanted to highlight flooding as an issue that has impacted us. We've had some work done by local university students to assess one of our watersheds. Now of course this is valuable in terms of doing a capital improvement program update or any kinds of changes, however it's not enough to just look at one watershed, but what happens upstream outside of our geographical boundaries and then what also happens downstream.

So we're trying to balance all of these different considerations as we move forward and make some of these infrastructure upgrades as well on a much larger, more of a regional scale. Again some of our opportunities in the natural environment can easily align with a lot of the other things that we're already doing in terms of policy or legislation or planning or projects. Finally, the social environment. And an interesting thing that came up -- this actually was

to focus on food security issues. So it's something that typically a lot of communities end up not highlighting quite a bit or even understanding really what it means to have a food-secured community. So that was impressive to me that people were already picking up on the value of local food and local producers as we move through the exercise.

I am throwing a lot of information at you, so please ask lots and lots of questions later on. Hopefully we can clarify. We're moving forward making changes to our standards, taking a look at where we should build or we shouldn't build, creating greenways or places for animals as well as people to be able to move have those connections. The reliability of emergency communications is another real vulnerability. How do you get information out to people? How can we increase our resiliency and our reliability on those systems?

How are we going to back into our master plan effort with CRC or move forward with it correctly? How are we implementing this? How do we know that this is happening and working well? We're seeing in a lot of the projects that we're moving forward, trying to identify measures is really difficult but the good news is that we just finished our master planning effort. We're going to continue to tackle a lot of the easy things first, the things that we can do today, the things that we perhaps already have in the pipeline but we just have to apply the climate question to it and add that on as part of the criteria for infrastructure assessment that sort of thing or changes in code.

So we're really trying to continue with our strategy going after the easy stuff first, because then it also continues to build upon success and motivate the people; that keeps the conversation relevant, and we can also tie into different conversations people might be having, whether they're interested in bicycle pathways or land preservation or a climate change thought.

Our master plan was just adopted in September. As I mentioned earlier we've written to the filter of a changing climate, and in particular, the emphasis and the focus into our comprehensive master planning process.

We're going to try and create framework around that. We're just starting the implementation side of things. What's really impressive is that we had over 2,000 people from our community participate in that. We created new

leadership and new models for participation. We use various media outlets and social utilities. And I would recommend that regardless of what kind of planning for that you're doing, that you really take that kind of open book approach towards how you design your programs.

You really think about whom it is that you need to get at the table. And then identify the people that you normally wouldn't see at the table, always brainstorm so you can identify gaps in some of the participation that you have. So really the emphasis is getting to the point where we're integrating and aligning a lot of it into the guiding document for our community. It wasn't like flipping a light switch. It's nothing that we could do overnight. It's a conversation, that conversation continues to evolve and you have to continually look in your toolbox and see what you have available to you and get creative. How can you use those tools in different ways? As now as we move forward, when we use a place to start and again it gets back to that toolbox thing, what are we doing, how are we doing this?

We're going to look at our regulations, where are these opportunities in that, what's happening in our transportation network. What's happening in our neighborhood planning? What's happening in terms of an opportunity to make our buildings better? How do we handle storm water? And create some sort of implementation plan that really melts together in some sort of fashion for both the community side and the state government side of things.

We have a two-step budgeting process. We have a six year capital improvement program for where larger investments are scheduled and prioritized. The second step is an operating budget. Are we doing the right things? Are we doing the things that the community wants us to do?

And the inner circle there that white one that one represents a fixed division focus areas that of our 2008 community vision. And the yellow circle shows the master plan and its more specific level of detail. So what we're trying to do (and our CFO is really taking an initiative on this), is to make it so that when folks end up submitting projects for their CIP program, there is feedback.

The way that people are using this is that there are areas for alignment, only if that project is rational. That is just one way that we're setting to go about making this more automatic. It might not be incredibly robust at this point but we're recognized that we need to take small steps because we need to get the process right in terms of how we integrate all of this and continually assess that. And again, we're creating another group of folks that can provide some oversight to all of this.

The integration of decision making and making sure that you have all of your departments talking about it and understanding it is a key point. And then consistently what has worked for us time and time again is making economic arguments. This appeals to our practical side of things and that's been a real success for us. And I would recommend to others keep moving with that as well.

Use your new tool as I mentioned earlier, partner with anybody that you can, create those collaborations, recognize that we're all working within incredibly limited resources these days and even more so if you're moving to the future. And how can we best use those resources? How can we best work with one another to move forward and achieve community wide goals to the best of our ability without getting cross-wise? We need dedicated staff time, and again education to get speaker series out there.

And I'm happy to say that we're seeing change. It might not be fast enough for some of us but it is happening and that's encouraging. Is it working? I can't tell you yet. I will tell you though that based on some of the numbers that we've gotten back, we're behind. In terms of the adaptation, we're trying to figure out how we're going to measure it with any kind of number associated with it. And we're taking a look at sustainability indicators as well to see if that's something that could help us.

Again we are a smaller community, so we don't have the same kinds of researches available to us that say New York or Chicago or some of the larger cities that have to be able to effectively measure, but we're getting there. So check back with me in a year as we've gone through one of our CIP budget processes and maybe I can shed a little bit more light on some of that.

Catherine Morris: Thank you very much. You've got a lot in there. And I guess I'll - because we are a little overtime, I'll wrap this up with a question that both you and Kurt can respond to. How do you decide where to allocate those very scarce resources between mitigation and adaptation planning and implementation. How do you make those kinds of decisions as you're heading into the future?

Mikaela Engert: For us really the big thing is where we've got overlap and when we start to take a look at a lot of things it's a win-win scenario. If it creates some sort of opportunities to increase resiliency in a way and maybe a save this money, that kind of a strategy is probably ultimately going to be number one. Sometimes, though, things might get bumped to the top because they are politically motivated. We have some rating criteria that we're going to end up using in our CIP that links back into some of our existing criteria for short term projects and those kinds of things but ultimately resource and flexibility and review and so it's constantly changing every single year from year to year but that's roughly how we do it. It's no different than I guess how we would do our CIP program at the end of the day.

Catherine Morris: And I assume you do pursue both of them together, not like one goes before the other necessarily?

Mikaela Engert: Well it really depends on the project too, I mean sometimes we might elect to take one of the leadership role on something. So it might be more of a mitigation side project then perhaps an adaptation side or even vice-versa. Sometimes it might be a money loser rather than a money maker. But it's really dependent upon if it's going to move things further along in terms of some of the overarching principles within our community vision that we wanted to achieve. There is so much more in it than I would have to time get into. But maybe I can follow-up with that person specifically offline.

Catherine Morris: OK, thanks. Kurt did you have a response to that?

Kurt Malchow: Sure and so I'm discussing this from a state perspective. I have the danger of getting little more vague but let me just start by talking about the information that we're trying to collect. We are hoping to use the research and the vulnerability assessment to find the largest problem. I don't know from there if we approach the issue from an allocation of mitigation versus adaptation. I would like to think that we look at the scale of the problem and then you could

divide up if you address it in the mitigation or adaptation issues. In most of the cases they feed off each other. And it is just a matter of trying to find out how those interplay.

Catherine Morris: Well thanks very much to all three our speakers. One had to leave a little early but I'll turn it back to Julia to close up the call today.

Julia Miller: Great, thanks Catherine. I would also like to thank the speakers. These were really fantastic presentations and I know that I learned a lot. I would also like to remind everyone about where to find the presentations online. You can go to www.epatechforum.org and all the presentations and background resources are posted on that site. I also want to remind folks again that we have one more webcast in this series coming up on federal programs and resources for climate adaptation, scheduled for January 13th from 2:00 to 3:30 PM Eastern Time.

So with that I will wrap it up and thank everyone for calling in, and we hope you're able to call in again next month.

Operator: This concludes today's conference call. You may now disconnect.

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