



Agenda

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SANTA FE RIVER COMMISSION

Thursday, November 8, 2012, 6:00 – 8:00 p.m.

City Councilors' Conference Room, City Hall

200 Lincoln Avenue, Santa Fe, NM

505.955.6840

1. ROLL CALL
2. APPROVAL OF AGENDA
3. APPROVAL OF MINUTES FROM OCTOBER 8, 2012
4. INFORMATION
 - a. About the report, *Climate Change and the Santa Fe Watershed: A Preliminary Assessment* (C. Borchert)
5. DISCUSSION/ACTION ITEMS
 - a. Discussion: Review of the field trip to locations on the lower Santa Fe River, below the city's Waste Water Treatment Plant (J. Jacobi and Commissioners)
 - b. Discussion: Regarding a process to follow for possible development of a management plan for the SF River Rural Protection Zone (J. Jacobi and Commissioners)
 - c. Discussion: Santa Fe River Fund, status and alternatives for the Voluntary River Conservation Fund (B. Drypolcher)
 - d. Discussion and Action: Approval of River Commission meeting schedule for 2013 (B. Drypolcher)
5. MATTERS FROM COMMISSIONERS, MATTERS FROM SUB-COMMITTEES
6. MATTERS FROM STAFF
7. CITIZENS COMMUNICATION FROM THE FLOOR

ADJOURN

Persons with disabilities in need of accommodation, contact the City Clerk's office at 955-6520, five (5) working days prior to meeting date.

**Santa Fe River Commission
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November 8, 2012**

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Approval of Minutes – October 11, 2012 Corrections: Corrections: Ms. Pike – well water should be raw water	Mr. Cutropia moved to approve the Minutes of October 11, 2012 as amended, second by Ms. Pike, motion carried by unanimous voice vote.	2
Informational: About the report, Climate Change and the Santa Fe Watershed: A Preliminary Assessment (C. Borchert)	Informational	2
Discussion / Action Items a. Discussion: Review of the Field Trip to locations on the lower Santa Fe River below the city's Waste Water Treatment Plant. b. Discussion: Regarding a process to follow for possible development of a management plan for the Santa Fe River Rural Protection Zone c. Discussion: Santa Fe River Fund, status and alternatives for the Voluntary River Conservation Fund d. Discussion and Action: Approval of River Commission meeting schedule for 2013.	Mr. Ellenberg moved to approve the 2013 meeting calendar as amended and if any holiday conflicts exist move to the following Thursday of that month, second by Mr. Cutropia, motion carried by unanimous voice vote.	3-13

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Adjournment	There being no further business to come before the Santa Fe River Commission, the meeting was adjourned at 7:40 pm.	13
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**SANTA FE RIVER COMMISSION
MINUTES
Thursday, November 8, 2012, 6:00 – 7:50 p.m.
City Councilors' Conference Room, City Hall
200 Lincoln Avenue, Santa Fe, NM**

1. ROLL CALL

The meeting of the Santa Fe River Commission was convened by the Chair at 6:00 pm, City Councilors' Conference Room, Santa Fe, New Mexico. A quorum was present at time of roll call.

Present:

Jerry Jacobi
Melinda Romero-Pike
Sam Gerberding
Dale Doremus
Richard Ellenberg, Excused
Jim Cutropia

Not Present

Phillip J. Bove
John R. Buchser

Others Present:

Claudia Borchert
Brian Drypolcher – Staff Liaison
Anna Serrano for Fran Lucero, Stenographer

2. APPROVAL OF AGENDA

Mr. Cutropia moved to approve the agenda as presented, second by Ms. Pike, motion carried by unanimous voice vote.

3. APPROVAL OF MINUTES FROM OCTOBER 8, 2012

Corrections: Ms. Pike – ~~well-water~~ should be raw water

Mr. Cutropia moved to approve the Minutes as amended, second by Ms. Pike, motion carried by unanimous voice vote.

4. INFORMATION

- a. About the report, *Climate Change and the Santa Fe Watershed: A Preliminary Assessment* (C. Borchert)

5. DISCUSSION/ACTION ITEMS

- a. Discussion: Review of the field trip to locations on the lower Santa Fe River, below the city's Waste Water Treatment Plant (J. Jacobi and Commissioners)

Felicity organized a field trip at the end of October and 5 commissioners went down to the lower river. We started at the wastewater treatment plant which was one of four stops along the river. Looked at the effluent first entered into the Bosque and saw it at the end when it comes out at the preserve. We were met by some of the folks downstream. In one area there was very little flow as beavers had stepped in to that part of the environment. 2nd stop was a farm owned by Ed Seeley and we ended up at Tres Rios, (Santa Fe River, Sandia and Alamo where they came together). It was interesting to see the effluent that was coming out; Claudia said it was about 5 million gallons a day which translates in to 15.3 CFS; it didn't like that to Mr. Jacobi. It looked much less than that. This was after the irrigation season and there was flow in the water. We were told that during the irrigation system there is not very much going through the system. The Chair said that was an opportunity to see a section of the river he had not see when he worked with the Environment Department, 30 years ago. They would go right below the Tres Rios junction and that was quite an eye opener to see the canyon.

Ed shared his concern with the city not giving enough water. Their main concern was that they thought the preserve was holding back too much water. They would like to see it managed in some way that it could be cleaned out so the water could be delivered more quickly to where they would like to use it.

Commissioner commented on water quality concern from Ed.

Ms. Pike said that they commented on La Bajada being the first before it hit any other water points.

Mr. Ellenberg asked if they changed the regime at the Preserve how would it change at their level and how much difference would it make.

The Chair said that they are looking for a water plan that will get the water through the system.

Ms. Doremus stated that they say they have noticed a change in the flow. They feel confident that they have seen this change.

Claudia: There is a report that will be finished next month which together with the Office of the State Engineer will show an extension ground water study in the area, a weapon survey and it has going towards Santa County a

map balance to try to understand what happens with flows and she is using the bit of scientific data we have which is wastewater treatment plant and down below the ditch in La Bajada is the gage that the city maintains right now.

Ms. Doremus: Did they do stream flow measurements in other areas related to that study?

Claudia: Loretta and Jack? Yes, they were trying to understand what the net contribution to flow comes from some ground water seepage vs. the net contribution from surface water flows. But we will be the first to tell you that in two years, the second year they didn't get any good data, the first year we tried.

The chair stated that the preserve is acting as a buffer and sponge and then it releases it early. We aren't sure if they want this removed and it will flash through there when it floods.

Claudia and Brian continue to attend the community meeting and the group seems to be content. Claudia is working on a plan for the effluent. The last time the working group met they decided to make the Santa Fe River option go from 5.05 mgd in the winter time to a 3 mgd in the summertime. This is a different flow pattern than what is in that plan right now. And even right now, with all current uses being met, that 3 mgd can't be met in the summertime. There has to be some prioritization. It was asked if it will come to the River Commission first; no, it will be seen in Councilor Calvert's commission first.

It was useful to understand the holistic value of the river. Enjoyed the understanding of the upstream and how it impacts downstream. It was always helpful to learn about the struggling farmers and what is needed to help them.

Claudia made the comment about understanding that it isn't just about water it is about the preservation of a way of life. Brian added that there was a comment about Santa Fe is a preservation of historic buildings, our architecture and the flavor of Santa Fe, why isn't there a similar interest in protecting cultural waterways.

Ms. Pike talked about the environmental issue, the quality of their water which is very toxic because of the presence of the beavers. The gentleman said how sick he was because he fell in the water. It was asked if there was any evidence to support this. What they heard was that he spent time in the hospital. We do not know if there is any evidence to support this statement. Ms. Doremus said he had a number of concerns on the water quality, the fevers, that water that comes out of the waste water treatment plant may have

pharmaceuticals and things like that. In his mind it is contaminating the area soil which is the ponded area vs. the river. There is scientific data and on top of that the Surface Water Quality Bureau does surveys and they are looking at concerns from a larger set of constituents. Claudia talked about the standards; standards will be changed from secondary contact to primary contact. We need primary contacts, the new standards that probably will be adopted most of the time, already. You never know why people get sick, you can go swimming in the Rio Grande upstream and it could be a flux of agricultural pesticides that are in there for a moment and then the next day it will be fine. It is just too hard to know.

Do they test the beaver pond to see if it is any different from what is going down the river; is it concentrating in that area, is that what they are alluding to? Claudia: Not that I know, we would have to check with NMED and I think what he would want to see tested are the soils, kind of the deposit around the beaver ponds to see if heavy metals or any other kind of toxins are around. Ms. Doremus said this man said the plants take it up. It depends on how clean the water is coming out. Claudia added that it depends on what you are talking about because each individual constituent believes differently on the life cycle so it is really hard to make a generalization. I would be surprised if most pharmaceuticals make it out of our wastewater treatment plant based on kinds of processes we have in there. I am not positive, I am not a chemist.

Are they asking for the beaver ponds to be taken out? The Chair stated that they would like to have more water in their system. Question is; within the protection zone, within the preserve the city oversees that, but what is the governing rule behind it; is it a Federal or State mandate.

Brian responded; there is not government mandate and you cannot touch the beaver ponds. Mr. Ellenberg stated that in our recommendations to management I think include leaving the beaver ponds there and I believe that was adopted a couple of years ago. Brian said there would be questions if this was brought up to them. Example: There is a little bit of damning that has happened at Calle Debra and it is right in front of a culvert that goes under Calle Debra under the street and it is on county property. If the county went out there tomorrow with a back hoe and broke that up and took the debris and dumped it in a dump truck and hauled it away, probably no one would ever say anything, think anything, do anything. If the city entered in to some kind of program where you were sending heavy equipment into the flood plain and altering the landscape there, including breaking apart beaver dams you are going to get in to the clean water act, you are going to get in to Army Corp permitting; so even though there is no mandate to protect the beaver ponds you would get in to some very interesting regulatory questions and regulatory issues if you went in there on a programmatic scale and altered

what was there. It is the wetlands; it is probably protected wetlands at this point.

Mr. Cutropia asked if it was safe to say that there are no options to remove the beavers. Brian said that there are options that could be pursued; you could come up with a programmatic approach and get that programmatic approach approved through the appropriate channels. It would cost a lot of money and just as a reminder there is the airport out there is getting close to wrapping up a Wildlife Hazard Assessment that was mandated by the FAA and there could be some directives that come down from that on directives to the use of surface water there and the ponds.

Mr. Gerberding stated that this FAA Report and the additional report being work on now should be reviewed and sees how it all comes together. Am I right that a lot of further discussion is needed?

The Chair commented in regards to having a process to follow, we have to wait for these things to fall in to place. Mr. Ellenberg commented; "if I understand we already have a management plan for the Santa Fe River Rural Protection zone." The Chair said yes. Brian added that the management plan has been written but it has never been adopted by the city. The Chair commented that he had sent a letter with the management plan but it was stopped at some point.

Brian added; the resolution creating the Rural Protection Zone on the Santa Fe River, etc, and it says; "the Rural Protection zone shall be managed by the Public Works Department through the Santa Fe River Coordinator in coordination with the Santa Fe River Commission. The Airport Manager in coordination with the FAA shall review recommendations for this rural protection zone. A scientific panel to review the work that has been done so far in recommending work that should be done with the remaining grant funds, provided with future management, the Santa Fe River Commission shall develop a Management Plan with involvement from the local community and explore a grazing management plan to take place during the dormant season. An unbiased pane should be assembled with at least one individual with an agricultural science background. Recommendations of the panel and a recommended Management Plan from the Santa Fe River Commission shall be presented no later than the Public Works Committee in March, 2003." My point is that there are things in here that speak to a process. This resolution goes back to 2002 and my assumption is that once a resolution is enacted is the resolution lives until somebody rescinds the resolution. Even though 2003 of course is mute, there are some things that are directing certain elements of a process and what I am suggesting is that River Commission discusses the process. Now we have a re-invigorated advocacy group down river that is feeling some pain and wants some relief. They are crying out for a management plan. Brian commented that it is up to

the Commission on how they want to engage in those dynamics; respond to this, respond to the group down there, and respond to the FAA Management related study. One of the things that I was thinking about is if you look at this, this is the draft of the management plan, and you look at the specific management practices, some of them you would say you can't deal with because you haven't heard from the wildlife hazard mitigation plan, for example the beaver and wildlife. Then you get to some other things, fire management, do we want to get this group together that is suggested by the resolution and work on some elements of the plan sooner rather than later so the plan moves forward and the commission is demonstrating some good will or to say; it isn't worth spinning all of the wheels until we hear from the FAA. In which case there is going to be a wildlife hazard assessment is going to go to the Airport, to the FAA, it is going to be vetted through all of these things. The plan only comes up with recommendations and then the recommendations go through other vetting process before they turn in to actual actions. It is going to be years before the recommendations of the Wildlife Hazard assessment turn in to action on the ground. Do we really want to wait that long? I know the farmers downstream don't want to wait that long. Mr. Ellenberg stated; it seems that if the assessment is going to come out in a month or so, (staff inserted the comment that they really don't know the date). If it is about to come out, we should have that. If it is not about to come out we can look at the process independent of that. I am not sure what kind of money we would need to give this scientific panel or if it would be volunteers. There is staff time and volunteers involved in this process. I am also curious as to how the protection of this as a wetlands interface with the FAA and what restrictions that has on what we can do. I would like to know, a) if we have any budget and b) when is the contractor expecting his report and c) at the next meeting, if the contractors report is not coming out soon then maybe we should begin to recruit some people for this panel and begin the process.

The Chair said we should wait and look at the report. Also noted is that the system has changed since that document was written which is a big concern.

Mr. Ellenberg said the process is a good process if we could pull it together with the right information and representation.

Ms. Pike asked, why the FAA would want to prolong something like this so long if they are so concerned about the birds, you would think it would be something more urgent. Brian answered that he didn't think that FAA is trying to delay anything; he was providing his interpretation of the process. First there is the wildlife hazard assessment that is neither a plan nor an FAA directive, it is an assessment prepared by a contractor working for the city. The contractor makes their assessment, says, this is what we believe to be the hazards, these are some recommendations we think you can follow to mitigate those hazards, but then the airport could also say, "well you know,

yes we are going to do this, yes we are going to do that, this costs too much or we already tried that, whatever they respond to those recommendations.” My understanding is that FAA has a role in insuring that the city has a wildlife hazard mitigation plan in place and is following that plan. I assume that there is some back and forth; the city takes the assessment, develops the plan and the FAA blesses that plan. That is why I believe it is going to take some time.

Ms. Doremus asked what kind of report the FAA would provide. Brian stated it is an assessment. Ms. Doremus asked; is it an assessment of what is there? It seems like the plans would become the next step, the plan that comes out of the assessment. Mr. Ellenberg said that the assessment will give us a data base. That data base and the recommendations may help us to start working on the plan. If we wait until they have a plan; the plan has to be interactive because we may have some interests that aren’t consistent with the assessment.

Ms. Doremus asked if Claudia’s report would talk about the effluent management. Claudia mentioned two reports, 1) the Environment Department report and the Bureau of Geology and Mr. Gerberding said that when he alluded to the report he asked what this was. It is the RWUP. Ms. Doremus asked what the timing of the RWUP is. Claudia said it will go to Public Utilities the first week in December, then it makes the rounds; Water Conservation Committee, River Commission and public meeting. Brian said to keep in mind the status of the Wildlife Hazard Assessment, staff time, budget, geology/environmental data.

Mr. Ellenberg said he would like to know how they could get some legal advice to learn how these all interplay with each other. Claudia said that she believes MaryAnn McGraw who is the author of this stated at the last meeting that there is a distinction between jurisdictional wetlands and just wetlands and they have mapped both for this process. She is having Mary Ann McGraw present her piece on the wetlands. It is Claudia understands that they will talk more about the jurisdiction of the wetlands.

Mr. Gerberding asked Claudia if she knew if there was a map that showed places where they have had beaver dams and how much water went through that area where the beaver dams were and how much impact it had on downstream water. As we discussed earlier, if we didn’t have any beaver dams how much water would really go further down. How much water is being lost in this process? I am hearing it isn’t only the beaver dams but more about the timing of the water as they change the flow itself and the rhythm of the water getting downstream.

Claudia stated that this was an unanswered question. I have done a literature search, and there are a lot of people that will say yes about the timing, but the

beaver does not reduce the amount of water. We know that our evaporation rates are very different compared to other places. We know that there is water loss when the water comes in and when it goes out but is it 2% - is it 30% and we don't know. We don't know the magnitude. Ms. Doremus said that Mary Ann McGraw will be a good resource to answer some of these questions.

- b. Discussion: Regarding a process to follow for possible development of a management plan for the SF River Rural Protection Zone (J. Jacobi and Commissioners)

(Two Handouts: Climate Change and the Santa Fe Watershed: A Preliminary Assessment (informational and to engage the commission to provide comments back to Claudia Borchert by November 30th). This went before the Public Utilities Committee and went before the Conservation Committee the night before. This is part of a bigger study that the city is doing in cooperation with Santa Fe County, Bureau of Reclamation and the whole idea is to understand what kind of impacts are likely to occur to our watershed given the projections of climate change. More specifically, is Part II of the project which Claudia is managing which asks, is the current long range water supply plan adequate in the face of the kinds of impacts that we expect to see. There are multiple people in the city working on climate change, specifically Kevin Mortimer and the Santa Fe Commission is also tasked to prepare us for climate change. Judicially they had done much more work on mitigation, adopting a green building code, trying to make us a bike friendly town, increase the fleets on fuel efficiency, all those types of things that are geared more towards mitigation. This assessment looks a lot more like this – here is what is coming and what are we going to do about it. This report in its fullness is on line at the link that is indicated in the 1st paragraph of the memo. The version presented to the commissioners does not have annex B which is the participant list of the workshop members. Annex B will be on line in the early future and it is important to know that this report is in draft format.

Second handout is the Executive Summary. Claudia tried to pick the highlights from the report for the commission perusal. Chapter 2 has a good summary of the science around climate change and the particular types of impact you are likely to see. Those have been summarized in the first box. (Claudia detailed the topic lines from the report attached as Exhibit B). She stated that the commission continuously asks about precipitation. Right now the result on precipitation is unclear, it could go either way it could be more rain, less rain or more precipitation. All the impacts documented in this Exhibit are strictly the result of hotter temperatures. Unless we get a whole lot more rain it is not going to offset the fact that we are going to have less stream flow, in general.

Chapter 3 looks at the vulnerabilities of the watershed as a whole but breaks it up in to different systems. The small pictures in Exhibit B are examples of the different system receptors that were looked at. Water Supply, how will those kinds of impacts that are identified above going to affect our water supply. Looking at the general impact and breaking it down in to a specific system or sector.

The last part of the report that is probably the most interesting would be section 5. There we have taken all of the recommendations that we heard at the workshop as well as from our experts and couched them again in terms of these sectors, these systems and identified what we should do about these vulnerabilities we identified. More interestingly for me almost a kudos is that within each of these in section 5 when you see one of these boxes, these are the things that area actually on-going. It isn't that we haven't already positioned ourselves, we are doing quite a few things; stream restoration is another big one that is already in there. There are a lot of things we are already doing because it makes sense and it will also help position us in terms of the different kinds of climate changes.

Claudia encouraged the commission to review this document and to provide her feedback before it goes final. What else is going wrong that we didn't know; there were 125 people at the workshop and they told us what they knew, all of us have been around and we tried to collect what we knew in here and I am sure we didn't get it all? Any feedback from the commission is encouraged and welcomed if they so have the interest, it would be helpful.

Q: Mr. Ellenberg: I always keep hearing that rainfall doesn't produce the same amount of water in the watershed system as snow in the liquid content. It always seemed to me that the rainfall would run off faster in the river and end up in the damn if anything was less loss than from the snow; why is that wrong?

A: Claudia Borchert: I have not heard that before. I would not necessarily say that one drop of water generated from snow is worth more than one drop of water generated by rain.

Brian: In terms of Santa Fe surface water do we drive most of our surface water from snow or from rain?

Claudia: Right now we get most of it from snow, but that doesn't really matter. Let's say the last snow fall occurs on March 15th and we get no more snow after that because of the increased temperatures but we still get the same storm moving through that last decade would have given snow – this decade gives rain. That same rain will still fall as rain and surface flow and end up in the reservoir. Traditionally, yes we get it from snow pack now we

are going to get it from a combination of snow pack and rainfall and it will still end up in our reservoir s.

Mr. Ellenberg: It seems to me that where this report goes to next is, almost a mind boggling list of options, even if anyone are under way already. It seems to me that the one thing that was attractive was storm water both for the river and maybe even drinking water purposes if we are looking at lots of big storms. In the projection for the future you could have lots of storm water and the use of that struck me as something very interesting if we get most of our water in really severe a storm which is the prediction.

Claudia: I totally agree that our single best resilient strategy for meeting.....storm water; what I tell people is, "don't let a single drop of water leave your property." That is the way we should treat our watershed. If it is easy to do on a small site of your property and then we should do that for the whole watershed. What kind of help does it take to retain water in general in various spaces in our watershed?

Mr. Ellenberg: Can we capture more of it coming through the drain system and treat it?

Claudia: Treat it through to potable centers or storm water to potable centers. There are many things that need to be considered, or do you just infiltrate it and let the soil clean it. It all ties in to the idea that wherever the rain falls you catch it and you make use of it in the way that makes the best sense of where it falls and what kind of shape it is in.

The Chair reiterated that comments should go to Claudia before the end of month.

Mr. Ellenberg noted that when Claudia stated that we needed to capture the rainfall wherever it flows, I am not sure I saw those words in the report, I would put them in.

Ms. Doremus said that this is a great project.

Claudia stated that one of the mandates that came in the resolution that directed this work was for us to educate people about it and obviously that is important. One of ways I thought of to make that happen is that in the resolution for every action that any city does, whether it is that a contract gets signed or it is an ordinance change we have to fill out a fiscal impact report. I thought it would that it would be worthwhile for us to do a climate change impact report that just forces everybody at the city to start thinking in those terms. Sometimes it is really hard to actually make it accessible. I think that is one way to bring exercise of impact home to your desk when we do our work.

It has been discussed to have a weekly lunch group to keep this discussion alive and moving forward. We would like to build a coalition of people who can help each other.

- c. Discussion: Santa Fe River Fund, status and alternatives for the Voluntary River Conservation Fund (B. Drypolcher)

Brian referred to the motion made at the last meeting on the river fund and addressed two parts from that motion. One part is, acquire some water rights in a way that will allow us to support the application to use the water in the Santa Fe River, that was a recommendation from the River Commission.

Brian met with Marcos Martinez and both will work together to go down this path. Mr. Martinez will draft the language for an advertisement that would go in the paper and going to other media venues to get the word out that the city wants to buy water to do this. There is a little bit of a budget so we can produce those ads in the paper, run them for a while and see what kind of response we get. This is the first step of an action plan to pursue the second part.

Mr. Ellenberg proposed approaching Acequia de Llano about leasing some water rights and using that as the grounds to file an application with the State Engineer to release water for the purpose of the river. I propose getting outside counsel to assist with that.

Brian will look in to this proposal.

The first part of that motion was, “amend the ordinance to allow fund monies to be used for anything that approves the flow.”

Brian met with the Mayor about this draft and he is on board with it. He said that he would look for other sponsors. I still have the question about the word, “flow.” It says include projects that will improve the flow of water. This focuses on flow, it seems that there are other things that could be done to enhance the eco systems in the Santa Fe River and the riparian corridor and the other activities that are not necessarily flow related. This is the way it is now and I think that it is good. The extensive riparian planting that we did, I suppose you could say it is going to improve the flow, but you have to get in to a discussion about that. Putting in a cross vane to help slow or stop down cutting; I guess you could say that will improve the flow because the flow is going to be here instead of here (as shown). Are we really “improving the flow?” But nonetheless improving the river corridor and eco systems.

Mr. Ellenberg asked Brian, what word would you suggest? I don’t think they want to make it broad enough to include tree planting.

Brian: "For Santa Fe River improvements, activities....

Mr. Ellenberg stated: "Dedicated to projects that improve the Santa Fe River in ways that it enhance the eco systems and the Santa Fe Rivers and its riparian quarter."

When you use the word "and" you need to meet them all so maybe it is and/or.

Mr. Cutropia asked when you use the word flow were you referring to volume? Mr. Ellenberg responded that he is referring to quality. This is more regulated with the same quantity or even lesser quantity but doesn't erode; it soaks in to the ground and helps the trees. Mr. Cutropia asked if it is the intent to improve the value of the flow so that we are getting the most out of it.

- d. Discussion and Action: Approval of River Commission meeting schedule for 2013 (B. Drypolcher)

February 14th is the meeting date, it was recommended that the meeting be held on February 21st.

Mr. Ellenberg moved to approve the 2013 meeting calendar as amended and if any holiday conflicts exist move to the following Thursday of that month, second by Mr. Cutropia, motion carried by unanimous voice vote.

6. MATTERS FROM COMMISSIONERS, MATTERS FROM SUB-COMMITTEES

Mr. Gerberding commented on the Farmers that came to the meeting. He would like to thank Felicity and to communicate thank you to the Farmers and letting them know they were heard and acknowledge that we continue work and will provide them with feedback.

7. MATTERS FROM STAFF

None

8. CITIZENS COMMUNICATION FROM THE FLOOR

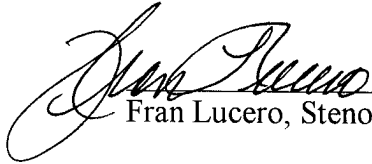
None

9. ADJOURN

There being no further business to come before the Santa Fe River Commission, the meeting was adjourned at 7:40 pm.

Signature Page:

Jerry Jacobi, Chair



Fran Lucero, Stenographer

City of Santa Fe, New Mexico

memo

DATE: October 30, 2012
TO: Public Utilities Committee
VIA: Rick Carpenter, Water Resources and Conservation Section Manager
Brian K. Snyder, Public Utilities Department and Water Division Director
FROM: Claudia I. Borchert, Water Resources Coordinator
RE: Climate Change and the Santa Fe Watershed: A Preliminary Assessment

Item and Issue: Climate Change and the Santa Fe Watershed: A Preliminary Assessment

Included in this PUC packet is the executive summary and the table of contents of the *Climate Change and the Santa Fe Watershed: A Preliminary Assessment*. To save resources on a draft report, the rest of the assessment is available on line at <http://www.santafenm.gov/index.aspx?NID=2577> or can be provided on a CD upon request.

Highlights of the report:

- Section 2 summarizes the current state of the climate change science for our watershed.
- Section 3 captures the process of the workshop, and the subsequent activities that lead to this assessment.
- Section 4 describes the vulnerabilities of our watershed, grouped by water supply, ecosystem, agriculture/food security, land use/quality of life, energy, transportation, economic, and sociological systems.
- Section 5 is perhaps the most important section because it identifies 1) what can be done to adapt to projected climate change impacts and 2) what activities, and they are numerous, are currently being undertaken throughout the watershed. The list of activities, largely gathered from the public at the workshop is impressive, but likely incomplete.
- Appendices record the content of the presentations given by experts at the workshop and the feedback gathered from the workshop attendees. The expert presentations and other information related to this project are also available on the City's website at <http://www.santafenm.gov/index.aspx?NID=2577>.

Background

As directed by Resolution 2011-17 *A Resolution Directing Staff To Prepare Revisions To The City's Long Range Water Supply Plan For the Governing Body's Review With A Special Emphasis on Climate Change*, staff has been analyzing how projected climate change impacts will affect our watershed in general and water resources specifically. Through the Santa Fe Basin Study, as part of the Bureau of Reclamation's (Reclamation) WaterSMART Program Initiative, the City teamed with

exhibit "A"

Executive Summary

Climate change is projected to have profound impacts on the Santa Fe watershed. The degree to which we will gracefully weather and adapt to the impacts will largely be determined by the preparations we engage in today. This preliminary assessment, collaboration among the City of Santa Fe, Santa Fe County and the Bureau of Reclamation, investigates how projected climate change impacts may influence some of the key natural and human systems in our watershed. The assessment also explores the adaptive actions that we, as stewards of this watershed, may consider implementing and details many of the ongoing activities that will increase the resiliency of our community.

CLIMATE CHANGE IMPACTS

Climate change has already begun and will continue to worsen. While exactly how the multiple changes will evolve is not totally certain, the experts in the field are confident in projecting, at a minimum, the following impacts to our watershed:

- Increased temperatures;
- Diminished snowpack and earlier spring melt of existing snowpack;
- Reduced stream flow due to greater evaporation rates and water use by plants;
- Earlier stream flow peak (from earlier snowmelt) and dampened peak flows;
- Drier mid- to late-summers;
- More severe and frequent droughts;
- Increased fire activity and risk of catastrophic fire; and
- More intense precipitation events resulting in increase peak storm flows, greater magnitude and frequency of flooding, higher erosion rates, more sediment transported by storm flows.

VULNERABILITIES

Through an interactive, public workshop held in Santa Fe on March 6th, 2011, the community and climate change adaptation experts identified the vulnerabilities of water supply, ecosystems, agriculture, land use and quality of life, energy, transportation, economic, and sociological systems. Even though each of these systems inherently overlaps with others and the boundaries are constructs, the systems approach allows us to focus on the most critical aspect of each. A summary of the vulnerabilities are briefly described below:



Water supply: decreased surface water availability; increased water use; unsustainable groundwater use; storage insufficient to capture storm events; debris flows triggered from catastrophic-fire causing loss of storage capacity; degradation of water quality; more frequent restrictions from Rio Grande Compact; increased competition over resource; less groundwater recharge.



Ecosystems: forests vulnerable to insects, fire, and desiccation; less available water; higher water needs; incursion of invasive species; habitat degradation from storms, flooding, erosion, and lack of water; loss of fisheries, upland forests, and grasslands; post-fire forests being replaced by grasses and shrubs, not the original native trees.



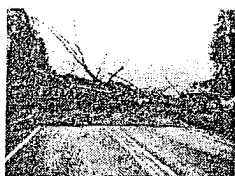
Agriculture: reduction in available water supply; increased crop water demand; greater divergence between highest stream flows and when water is needed for irrigation; increased damage to crop from pestilence, high winds, violent rain storms, and flooding; increased pressure to transfer agricultural rights to urban areas; rural-urban conflicts over water and water rights; failure of genetically engineered crops; reduction in viable grasslands for cattle; livestock reduction and mortality from extreme weather conditions and rising cost of feed; increasing food prices.



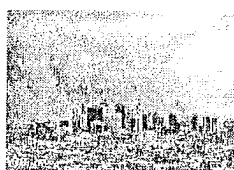
Land use and quality of life: increased water needs for green spaces; increase of urban flooding; reduction in quality fishing opportunities; reduction in length of skiing and rafting seasons; diminished hiking, biking, and hunting opportunities due to fire; poorer air quality; increased heat stress in elderly, the infirmed, and infants from higher summer daytime and nighttime temperatures.



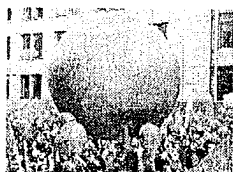
Energy: increased competition for water with energy production of water-intensive coal, natural gas and nuclear; less hydropower production; reduction in solar production because of higher temperatures and more air particulates; increased energy consumption during the summer and extreme cold weather events; reduced power and gas reliability during extreme conditions.



Transportation: increased interruptions from dust storms, intense rains, and smoke; failure of infrastructure (paved roads, bridges, culverts, rails) designed for less extreme conditions; more difficult flying conditions under higher temperatures.



Economic: tourism and population growth may decrease if climate conditions are unfavorable (e.g. too hot, not enough snow, smoky); insurance premiums may rise for services impacted by natural hazards; cost of energy and water may increase as each becomes more expensive to acquire and transmit.



Sociological: limited local and regional governmental resources to provide emergency services for increased severe weather events; maladaptation of institutions inflexible to rapidly changing conditions; disruption in cultural identities and traditions.

The value of identifying vulnerabilities lies in finding adaptation actions that will address vulnerabilities and thereby increase the watershed's resiliency. While it may seem daunting to

face the long and sobering list of liabilities, a silver lining exists. First, most of the adaptation actions fall into the “no-regrets” category - meaning that the benefits of the proposed activities render adaption worthwhile, regardless of the future conditions. Second, the Santa Fe community has collectively already engaged in a number of actions that have already increased the ability of our collective watershed- humans included- to respond and adapt to projected changes.

The recommended adaptation activities listed below are limited to those that have not, to some degree, been implemented. Current ongoing efforts are listed in the following section and their continuation is also advised.

RECOMMENDED ADAPTATION ACTIVITIES

- ❖ Improve ecosystem biodiversity.
- ❖ Manage and plan restoration holistically.
- ❖ Design or modify bridges and culverts to handle higher intensity runoff events.
- ❖ Incorporate urban agriculture in water and land use planning.
- ❖ Cultivate climate appropriate crops.
- ❖ Transfer water from agriculture to urban during drought for limited-term.
- ❖ Adjudicate Santa Fe basin water rights.
- ❖ Provide incentives and programs to significantly reduce high water users.
- ❖ Augment potable water supplies with reclaimed wastewater.
- ❖ Increase water storage capacity.
- ❖ Require pervious pavement where appropriate.
- ❖ Decentralize energy infrastructure.
- ❖ Municipalize energy system.
- ❖ Expand water harvesting techniques.
- ❖ Install solar panels over parking lots and elsewhere to reflect heat and produce energy.
- ❖ Establish a climate-change targeted monitoring system.

CURRENT ACTIONS

FOREST THINNING

RECLAIMED WATER USE

RIPARIAN RESTORATION

STORM-FLOW MANAGEMENT

SEED SOVEREIGNTY

WATER SUPPLY PLANNING

EDUCATION AND OUTREACH

LAND PRESERVATION

DROUGHT MANAGEMENT PLANS

EMERGENCY RESPONSE CAPACITY

CONJUNCTIVE USE OF WATER

WATER FOR ECOSYSTEMS

IMPROVED WATER QUALITY

DOMESTIC WELL RESTRICTIONS

LOCALLY-SOURCED FOOD

IRRIGATION EFFICIENCY

URBAN FORESTS

LOCAL AND RENEWABLE ENERGY

ARROYO STABILIZATION

ENERGY-WISE BUILDING CODES

SMALL-SCALE LAND SHAPING

PUBLIC INVOLVEMENT

PRESERVATION OF GREEN SPACES

WATER CONSERVATION

REGIONAL COOPERATION

MONITORING

RANGELAND IMPROVEMENTS

STORM-WATER RETENTION

ART-INSPIRED ACTIONS

AQUIFER STORAGE / RECOVERY

URBAN GARDENING

WATER DEMAND MANAGEMENT

NEXT STEPS

While the recommended adaptations are longer-term goals, the list below identifies small incremental steps that will begin to position our community for the projected future.

- ❖ Develop a GIS-based watershed-wide map for tracking existing action in all sectors or systems. The map will help prioritize the areas where further action is needed.
- ❖ Enhance and use water resources dynamic system simulation model (WaterMAPS) for sound and adaptive water management.
- ❖ Develop and/or coordinate community-inclusive, interagency, intergovernmental, watershed-wide, technical advisory committees that focus on specific sectors or systems. These committees may increase communication and coordination among existing efforts to enhance effectiveness; develop more detailed visions, strategies and recommendations; implement activities; and/or track progress. For best results, these advisory committees need to work closely with existing 'umbrella' organizations like the Sustainable Santa Fe Commission, and other existing planning and emergency groups.
- ❖ Monitor key climate-change impacted parameters (temperature, precipitation, temperature extremes, and storm events) so that the picture of impacts and emerging trends can be identified.
- ❖ Implement the water-related recommendations that will result from the next part of the Santa Fe Climate Change Basin Study.
- ❖ Request that all governmental actions consider the impact of a bill, resolution or contract on mitigation and adaptation of climate change before approval is granted, much as a Fiscal Impact Report (FIR) is used to consider the financial implications of proposed actions.
- ❖ Seek funding opportunities to implement recommendations made in this assessment.
- ❖ Develop comprehensive public education program to teach the community, agency staff, and elected officials about the potential impacts of climate change and provide opportunity for collaborative citizen engagement.