City of Santa Fe

Agenda

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SANTA FE WATER CONSERVATION COMMITTEE MEETING
CITY HALL - 200 LINCOLN AVE.
CITY COUNCILORS' CONFERENCE ROOM
TUESDAY, OCTOBER 8, 2013
4:00 PM TO 6:00 PM

1. CALL TO ORDER
2. ROLL CALL
3. APPROVAL OF AGENDA
4. APPROVAL OF CONSENT AGENDA
5. APPROVAL OF MINUTES SEPTEMBER 10, 2013 WATER CONSERVATION COMMITTEE MEETING
6. CONSENT AGENDA
   - A. DROUGHT, MONSOON AND WATER RESOURCE MANAGEMENT UPDATE (Rick Carpenter)
   - B. WATER CONSERVATION EDUCATION AND OUTREACH: UPCOMING EVENTS (Laurie Trevizo)

DISCUSSION ITEMS:

7. OPEN MEETINGS ACT PRESENTATION (Gene Zamora, Legal, 20 minutes)

INFORMATIONAL ITEMS:

8. REBATE ANALYSIS (Councilor Ives, 20 minutes)
9. GROUP REPORTS FROM WATER CONSERVATION COMMITTEE INITATIVES: (Councilor Ives, 60 minutes)
   - A. GROUP #2- WATER CONSERVATION EDUCATION/OUTREACH (12 minutes)
   - B. GROUP #3- PROMOTE OUTDOOR WATER CONSERVATION (12 minutes)
   - C. GROUP #4- REESTABLISH TREND OF NET ANNUAL REDUCTIONS IN PER CAPITA WATER USAGE AND IDENTIFYING LARGE WATER USERS (12 minutes)
   - D. GROUP #5- DOMESTIC WELLS WITHIN THE CITY LIMITS (12 minutes)
   - E. GROUP #1 – WATER CONSERVATION & DROUGHT MANAGEMENT PLAN UPDATE (12 minutes)

MATTERS FROM STAFF:

10. WATER CONSERVATION COMMITTEE PROPOSED 2014 SCHEDULE (Laurie Trevizo. 5 minutes)

MATTERS FROM COMMITTEE:

11. 2014 LEGISLATIVE RECOMMENDATIONS (Councilor Ives, 10 minutes)

ITEMS FOR NEXT AGENDA – TUESDAY, NOVEMBER 5, 2013:

Invitation to State Legislators

Demand Elasticity, if available

CAPTIONS: October 18, 2013 @3 pm PACKET MATERIAL: October 23, 2013 @3 pm

ADJOURN.

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

INDEX OF

CITY OF SANTA FE

WATER CONSERVATION COMMITTEE
September 10, 2013

MINUTES OF THE

CITY OF SANTA FE

WATER CONSERVATION COMMITTEE MEETING

Santa Fe, New Mexico

September 10, 2013

1. CALL TO ORDER

A meeting of the City of Santa Fe Water Conservation Committee was called to order by Councilor Peter N. Ives, Chair on this date at 4:00 p.m. in the City Councilors' Conference Room, City Hall, Santa Fe, New Mexico.

2. ROLL CALL

Roll Call indicated the presence of a quorum as follows:

Members Present:
Councilor Peter N. Ives, Chair
Melissa McDonald, Vice Chair
Tim Michael
Doug Pushard
Stephen K. Wiman
Grace Perez
Giselle Piburn
Lisa Randall
Bill Roth

Member(s) Absent:
Lise Knouse, resigned
Karyn Schmitt, excused
1 vacancy

Others Present:
Laurie Trevizo, Water Conservation Manager
Caryn Grosse, Water Conservation Specialist
Nancy Avidisian
Jo Ann G. Valdez, Stenographer

3. APPROVAL OF AGENDA

Ms. Perez moved to approve the Agenda. Mr. Wimen seconded the motion. The motion passed unanimously by voice vote.

4. APPROVAL OF CONSENT AGENDA

Mr. Michael requested that Item 6a (*Consent Agenda-Drought, Monsoon and Water Resource Management Update)* be removed to discussion items.

Ms. Perez moved to approve the Agenda as amended. Mr. Wimen seconded the motion. The motion passed unanimously by voice vote.

5. APPROVAL OF MINUTES : AUGUST 12, 2013 WATER CONSERVATION COMMITTEE MEETING

Ms. Randall moved to approve the Minutes of the August 12, 2013 meeting. Mr. Michael seconded the motion. The motion passed unanimously by voice vote.

6. CONSENT AGENDA (removed to discussion items)

a. Drought, Monsoon and Water Resource Management Update

DISCUSSION ITEMS: (Moved from Consent Agenda)

a. Drought, Monsoon and Water Resource Management Update

[Copies of the Memorandum from Rick Carpenter regarding the *Update on Drought, Monsoon and Water Resource Management* were distributed in the members' packets. Please see Exhibit "6a" for the specifics.]

Mr. Carpenter asked if Mr. Michael had some specific questions.

Mr. Michael said he did not have any specific questions, only a comment about the update on the *Drought, Monsoon and Water Resource Management* report. He said in looking at it again, it occurred to him that this talks significantly about surface water; but it was not quite as flushed out, particularly about the use levels of our wells. He said perhaps they may want to consider, as they continue to develop this report, to add more detail about how the wells (ground water) fit into the overall water issue.

Chair Ives asked Mr. Carpenter if this sounds notable.

Mr. Carpenter said yes, particularly since they are pumping more from the wells now. He offered to compile a monthly report on this.

Chair Ives said one other thing that he may ask is, with regards to the San Juan Water Basin, it sounds like Bureau of Reclamation (BOR) Army Corps of Engineer representatives have started to talk about the Colorado River for next year, and possibly we can add that information in.

Mr. Carpenter said we can talk about it but not in quantitative terms because BOR Army

Corps are reluctant to come up with projections at this time. He noted that he sits on a newly formed Colorado River committee that is involved with a small industrial conservation committee and this will be a good venue for this discussion. He offered to include that information when he receives it.

Chair Ives asked if there were any more questions for Mr. Carpenter.

Ms. Perez asked Mr. Carpenter if he could talk a little more about that committee because it sounds interesting.

Mr. Carpenter said yes, as you recall several few weeks ago, the Mayor had a press conference on the state of the Colorado River and that was partially associated with this new effort that is being put forward primarily by the managers of the Colorado River. They have reached out to the various states that are signatory to the Colorado River, and asked each state to identify specialists within their state to identify various issues: hydrology, municipal and industrial use, etc. Mr. Carpenter sits on this working group and they meet every six weeks. He is working on a report of this.

Chair Ives asked if the Committee could receive a list of the members, to include where they are from.

Mr. Carpenter said yes noting that the Committee members consist of hydrologists and utility managers.

Chair Ives said he would be interested in this because the Colorado River has been significant in the City's circumstances, particularly in the last few years.

Mr. Carpenter said there are a lot of interesting and very complex issues.

Chair Ives said for those who would like to gain a further background on the Colorado River, the easiest reference would be the Department of Interior Bureau of Reclamation Report that came out recently. It includes six supply scenarios and four demand scenarios, which show disparity and demand over supply is somewhere between 3-7 million acre feet per year. He said he would believe that Santa Fe would have much to offer in many of those discussions.

Chair Ives asked if there were any other questions, seeing none, he thanked Mr. Carpenter for attending, and for the update.

7. UPDATE ON WATER TRUST BOARD CHANGES

Chair Ives said he believes the Water Trust Board receives an allocation of $30 million every year, which has been used in the past for such things as the Buckman Diversion project.

Mr. Carpenter said Buckman Diversion received approximately $21 million over the years in Water Trust appropriated funding.

Chair Ives said this gives you a sense of how important this source has been for the City of

Santa Fe. He said the Water Trust Board is a state board which has recently seen many significant changes in terms of its composition, as well as its policy and procedures. There are also new structural requirements before any organization could be eligible to receive any Water Trust Board funding; and the City of Santa Fe may have challenges with one or two of those requirements. They have also eliminated the capacity of smaller domestic water systems to qualify for funding. The second thing are the changes that are being introduced in the selection process, which will allow either the water Trust Board or the Governor to declare an emergency or an urgency circumstance, where they will start directing funds towards those entities or areas that qualify under those new terms, rather than the recommendations from the Water Trust Fund to the Legislature.

Ms. McDonald asked what body or who made those changes.

Chair Ives said the changes have only been proposed but the New Mexico Finance Authority has oversight and Senator Nancy Rodriguez sits on the Water Trust Board. He noted that the City would like to meet with Senator Rodriguez to talk about the proposed changes.

Ms. Randall asked how this is funded, where does the money come from.

Chair Ives said it is set aside from the Legislature.

Mr. Carpenter added that the original seed money came from the Drinking Water Revolving Fund, and federal money. He explained that they started a program several years ago where it was not only grants, but also loans.

Chair Ives said he has not seen all the changes implemented and he would be happy to share additional information when he gathers it.

INFORMATIONAL ITEMS:

8. GROUP REPORTS FROM WATER CONSERVATION COMMITTEE INITIATIVES:

a. GROUP #1 – Water Conservation and Drought Management Plan Update

Ms. Perez said Group #1 did not meet this month and they should be meeting over the coming month to start reviewing Section 5 of the plan to see what things are missing.

Chair Ives said they know that the City uses approximately 10,000 acre feet of water annually and it would be interesting, in terms of what this Committee is working on, to postulate that the City would only have 7,000 acre feet available to see what the Committee can do by way of suggesting modifications to ordinances and system usage that would basically keep us in a viable future, given a significantly diminished supply. He said this could be a valid exercise for the Committee to consider and would welcome anyone's thoughts on that.

Mr. Michael asked what the water supply was for the 2002 drought period.

Mr. Carpenter said the demand was a lot higher in 2002, at approximately 12,000 acre feet

per year, and between the Buckman wells and City wells, they were using every drop they could and there were some days where they barely meet demand.

Chair Ives asked if this seems like a valid exercise and asked Ms. Trevizo what she thought.

There was agreement of the Committee Members that this would be a valid exercise.

Ms. Trevizo said the resiliency piece is something she thinks this group would want to address.

b. GROUP #2 – Water Conservation Education/Outreach

Ms. Perez said at the last meeting she promised that they would hand out some sort of a draft presentation (for the general public) and they have this today for the Committee. This was distributed to the Committee Members. Please see Exhibit "8b" for the specifics of this presentation.

Ms. Perez noted that this draft is for WCC's review and should not be circulated. She said it is very much in draft form and they welcome any thoughts and feedback on it but they are not asking for any kind of approval today.

Ms. Perez said basically the structure of the presentation includes slides on where the City gets its sources of water; how they put this water to use; do we have enough for the future and what are we doing now and what do we need to do in the future in terms of water. It also includes a map of the areas on the sources of water.

Mr. Michael said the intent of this is to focus on the overview topics for the general audience.

Chair Ives asked what their sense of timeframe was for the presentation.

Ms. Perez said she would think between 20-30 minutes. She said they have a large number of backup slides that can be used by the presenters.

Chair Ives said he would love to see the backup slides.

Ms. McDonald asked if this is something that should be placed on the agenda for the next meeting. She would like to have more time to read it.

Mr. Michael said they are still working on the details and they are not ready to present it as of yet. However, they would appreciate any comments or feedback.

Chair Ives said one thing he plans on doing, is to invite the new candidates who are running for positions across the City for them to hear what the Committees he is involved in are doing. He would like to do report on water and on solid waste to get them engaged and involved. He was thinking of doing this sometime in October.

Mr. Wiman said one of the goals is for anybody on this Committee to be able to make this presentation to the public, once it is approved. Another goal is to present it to City Council - there are people on the Council who could benefit from this also.

Ms. Perez noted that there are total of 60 slides that have been made. She said it is very hard to keep all this information in one presentation, as there is a lot of information.

Ms. McDonald said it was the community participation part that was mentioned at the last meeting. She asked where somebody would be able to provide their input about the quality of life issues.

Ms. Perez said it would depend on how the presenter wants to handle it. She said they talked about whether this would be an interactive presentation.

Chair Ives said this raises a pretty interesting question. He said the City has sort of a real time opinion survey mechanism where everybody in the audience is given a small handheld unit; a series of questions are posted usually on a screen with various potential answers, and people sit and click it; and the software tabulates the results. The results are available immediately and can be reviewed by the audience. He said there is no reason that this couldn't be done here at City Hall, as part of this exercise, and as we develop a series of survey questions, this is one way to do it very efficiently.

Ms. McDonald said it would be very helpful to have a place where people could provide input because we do want the community's input as it is their community; and it would only help to make this presentation stronger. She suggested that there be a slide to remind people and the presenter that we want input, because it is a very important part of how the Committee is perceived and what the Committee wants from people.

Ms. Perez thinks this is a good idea. She said there is a slide that solicits volunteers to do work with work groups or become conservation members.

Ms. McDonald said there could be a slide that asks a question like: "Do you know how much water you use?" because a lot of people do not have any idea on how much water they use, as a family, or as an individual. She would like to see a little bit of this included in the presentation.

Chair Ives recommended that a series of slides be created to have after a presentation is made to solicit this type of information. You could ask questions like: "what ways do you think the City could consider to save water, etc."

Ms. Trevizo said she likes this idea because if they are able to capture that data, they can actually take this presentation with the data they are utilizing from it, and roll it into the planning for the Water Conservation and Drought Management Plan for the future. She said there would be some value in making the presentation, as well as the attendee getting some information.

Ms. McDonald said this is an important component that she does not want to let get behind and that's why she keeps bringing it up, because the Committee really needs to engage the community; and that's how you are going to get changes - when people have a buy in and they understand and see how it affects their lives.

Ms. Randall said she is excited to get this into the schools and this presentation is easily accessible to teachers. She suggested that the presentation be translated into Spanish also.

Mr. Wimen said one of the goals of the working group is to get some City sponsorship where they could help them with advertising and with a presentation that is more disseminated in the community.

Ms. Perez noted that Rick Carpenter has offered to assist with the presentations.

Ms. McDonald said it might be good to videotape one session where there is a particularly good presenter and an excited audience to have it available on the website to get it out to the general public.

Chair Ives and Ms. Randall agreed that this is a great idea.

The Working Group was commended for the great job they did on the presentation material.

c. GROUP #3 – Promote Outdoor Water Conservation

Mr. Pushard reported that he, Nancy Avidisian and Bill Roth met and reviewed some of the action items that they are going to work on. He referred to the notes from the meeting with the Santa Fe Home Builders' Association and the meetings with Executive Director, Kim Shanahan.

Mr. Pushard said a presentation was made to the local Home Builders' Association and they came up with a list of suggestions; the Working Group provided input and then Kim Shanahan took this information and created a survey, sent it out to the homeowners for feedback and for them to rank their priorities that they would like to see the Working Group work on. The top three priories include:

1) Looking at investigating a higher-tiered water rate- using the funds to promote water conservation at the low-end.
2) Creating an equivalent of the HERS rating – creating a WERS rating (Water Efficiency Rating System) that would be included in the building code *only* for residential users

   Chair Ives said he understands this statement, but not the practicality.

3) Purple Pipe – bringing gray water back into the home. It would be recycled water that is coded "not potable" so people won't drink it.

Ms. Avidisian said one of the big things that he talked about was funding the water conservation at the lower end. One of his ideas was to take an actual "pillow" that would fit underneath a mobile home or manufactured home; the water from the roof would go into this

pillow and fill it up and then it would go back to the house to flush toilets.

Ms. McDonald noted that they do this in Australia.

Mr. Pushard said they will get back with Kim Shanahan on the top three priorities/ideas and maybe create little sub working groups on each of the ideas to flush out the ideas and bring them back to the Committee.

Mr. Pushard quoted from the comments on the surveys, as follows:

1) *"I like the idea of doing interior water audits and providing free water efficient shower heads and other faucet water-limiting devices."*
2) *"Providing financial incentive programs for people who change high-flow showerheads and old high-flow faucets to low-flow, similar to the toilet-retrofit program. Most people use a large quantity of water showering or bathing every day, especially if they do not have a hot water re-circulating pump."*
3) *"Start to charge a lot more for above normal use immediately."*
4) *"Why should existing residents limit or even sacrifice their landscaping and gardening needs to accommodate continued and future population growth in our community? That is essentially what an 85-gallon per capita goal implies. Note that indoor water conservation measures, while worthy for other reasons, don't really save water as water used indoors isn't actually used, but it's borrowed ending up in the Wastewater Treatment Plant and discharged to the Santa Fe River."*
5) *"Limit new construction and major remodels to improve gray water and rainwater harvesting."*
6) *"Mandate developers to both create and execute xeric landscaping plans.*
7) *"I think bond funds, or at least government bonds can be used for private property, unless homeowners are income qualified. Other finance incentives would rank high."*

Ms. McDonald thanked Mr. Pushard for this information. She said she is also interested in rate structures and the tiering and she would like to make sure she is involved in this particular component.

Ms. McDonald asked if this is like the first test of presentations. She said working with the builders on water conservation is great, but are we looking bigger.

Mr. Pushard said to answer Ms. McDonald's question, he, Nancy and Bill met and they are currently working on scheduling a meeting with the Green Chamber Commerce. Bill has a tentative date and Mr. Pushard will send it out once he gets it. He noted that Nancy is working with the realtors in trying to do a "test run" with the Barker Realty group.

Ms. Avidisian said she is also talking about doing an MLS monthly meeting with Paco at the Santa Fe Association of Realtors. She is also talking with Barbara Felix at IAIA.

Mr. Pushard said they are trying to get other groups involved, and do the same thing with them to try to focus on what they are interested in.

Ms. McDonald asked if this is under "Promote Outdoor Water Conservation". She asked him if he is going out to open a dialog with these groups.

Mr. Pushard said he is trying to suggest a change to their working group. He said they are trying to build information on what ordinance or resolutions that the different public organizations would be in support of, to promote water conservation.

Ms. McDonald said she is unclear as to how this is being presented to the public. She expressed concerns on Committee Members going out to the community and presenting or asking questions on behalf of the Committee. She wanted the Committee to have a discussion on how things are being presented. She said, procedurally it is really important for the Committee to be aware of how things are being presented, and what the Committee is doing. She said if it is a brainstorming session, that's fine, but Committee Members should not be answering questions on behalf of the Committee. She would like to know what is being asked out in the community. She referred to a comment in previous Minutes that Mr. Pushard made - with respect to the fact that he indicated that he was not representing the Committee.

Chair Ives said he was present at the meeting and most of the meeting was informational. He said the meeting was designed to solicit input on water issues and water conservation from the homebuilders. He said he thinks this is a topic of conversations that all of us in the community are having, probably on a daily basis.

Ms. McDonald said she did not think this was a problem, but it could be a problem. She thinks it is important for the Committee to define what they are going to talk about in the community; and to have some basic protocols in place.

Ms. Trevizo said the City has spent quite a bit of money on the PR and marketing outreach, and to have clear constant messaging, and Ms. McDonald does have a point in that they really do try to be strategic with regards to this.

Mr. Pushard noted that he spoke about the Homebuilders Association meeting at the Committee meeting that Ms. McDonald missed a couple of months ago and they talked about a brainstorming session. This was already approved by this Committee. He said this was not brought up then, and if the Committee wants to come up with rules, let's come up with rules.

Ms. McDonald apologized. She said brainstorming is good and she liked that this feedback was brought back to the Committee; however, she is concerned on how things are phrased and what is being said.

Chair Ives said Mr. Pushard was not expressing any kind of opinion. He was only soliciting input from a group. He said possibly a database of groups and contacts, to include a list of e-mail addresses, could be created to level outreach efforts.

Mr. Pushard said at the last meeting, he reported that he and Tim are drafting an independent analysis on rebates and they are continuing to work on that. Mr. Michael met with Laurie Trevizo and Karyn Schmitt to make sure the data they were using in the analysis was

correct. They will draft a white paper on what the analysis entails for the next meeting.

d. GROUP #4 – Re-establish Trend of Net Annual Reductions in per capita water usage and identifying large water users

[Copies of the written report from Work Group #4 were distributed. Please see Exhibit "8d" for the specifics of this presentation.]

Ms. McDonald said they met and talked about combining the two groups (4 & 5) as discussed at the last meeting and came up with a new name called "Promoting Conservation Strategies of Large Water Users".

Ms. McDonald said they looked at data that Mr. Michael pulled together, analyzed it and broke out all the various users and brainstormed some ways to approach them. They decided that the three areas that they would like to work on are: residential, lodging and parks. They (Karyn, Councilor Ives, Laurie and Melissa) had a meeting with Nick Schiavo and talked about the various issues of the billing system, meters, and things like that and Mr. Schiavo indicated that he would appreciate some help when they get to the EMI meters and they talked about different ways to do that. A POSAC meeting is scheduled for September 18, 2013 and Ms. McDonald will be talking about water conservation measures at the meeting.

Ms. McDonald asked the Committee Members if she could invite Anna Hanson, the Chair of POSAC Committee and Ben Gurule to the next meeting. She would like them to work together in looking at some of the recommendations that they want to pursue.

Chair Ives said he thinks that would be great given the size of water usage of the parks which continues to be a significant issue for water conservation. He said it would be good to get a sense of the water usage for parks.

Ms. McDonald said she is currently working on getting that information and she will let the Committee know if she needs assistance with this.

Chair Ives said please do.

Ms. McDonald said, at Mr. Michael's suggestion, the group talked about taking a map that has all of the parks and what their gallons usage is; what they do and what their activities are and really look at this. She said they are agreeable to this.

Mr. Wimen asked Ms. McDonald whatever happened to the quest to find out how they could have a device in houses that let people know what the meter readings are. He said he had his third personal experience of a leak that he did not know was occurring and it is getting expensive for him.

Ms. McDonald said this was talked extensively in the meeting and the City said maybe in a year they can do that. It will have to be a phase-in approach because converting the meters over can take some time. She said she suggested that there may be people who will pay to do this in advance, or earlier, because there are people who have this terrible leak problem.

Chair Ives said the corresponding thing to that is trying to make sure we have software in the billing system, as that information is aggregated, or perhaps there is a dramatic increase over some period of time, trying to detect a leak problem sooner.

Mr. Pushard asked if there was discussion about using a third party for billing information.

Ms. McDonald said yes they discussed this and they are open to doing this but they are not willing to commit to anything yet.

Ms. Trevizo mentioned that they are interviewing manufacturers of different meter readers and there is not one system that does it all. There are going to be some trade-offs and some expenses involved. She noted that they are looking at a hybrid system that will do both AMR and AMI.

Ms. McDonald said she thinks that they can do the meter readers before we get the billing system.

e. GROUP #5 – Domestic Wells within the City Limits

[Copies of the written report from Group #5 were distributed. Please see Exhibit "8e" for the specifics of this presentation.]

Mr. Wimen noted that the second handout is a matrix of the Working Group and what their goals and objectives are.

Mr. Wimen said he would like to talk about whether or not a resolution by City Council is required to authorize the staff time that will be required.

Mr. Wimen noted that they have enlisted a hydrologist (Peter Balleau) to be a member of the working group. He brings knowledge to the group of the aquifer modeling, which has been done to date and they will not be starting from scratch.

Mr. Wimen said there are two issues here: 1) there are abandoned private wells that have not been legally and properly plugged per OSE specifications, and what they are doing to the aquifer. 2) The equity issue of whether it is fair for people who have wells to not be registered and operating under the radar and using as much water as they feel they are entitled to. Some private well owners think that their private wells are part of their property rights, are "grandfathered in" and/or that they are entitled to pump those wells without compliance with city regulations (such as watering times) and without concern for how much water they may be using.

Mr. Wimen said along with that are the legal issues. He referred to Case law (Smith GWP v City of Santa Fe, 2007 and Stennis v City of Santa Fe 2008), which seem to support the jurisdiction of the city over private wells. Working Group #5 would like to have the Water Division legal staff prepare a summary of the case law and what staff believes are the city's rights to regulate private wells and require that abandoned wells be properly plugged. He said

addressing the issue of private, domestic water and wells within the city could be contentious but could result in significant conservation of groundwater. He noted that the city requires a meter and regular reporting for wells drilled since 2007, but does not have any such requirements for wells drilled prior to 2007.

Mr. Wimen said he would like to hear what the perceived importance of private wells is to the other Committee Members.

Chair Ives said the best estimates, at least from what he has seen, is that there are at least 711 wells across the City of Santa Fe and many of them are very long standing. He said there was a constitutional provision upheld recently by the New Mexico Supreme Court addressing domestic wells in that context; therefore, there are several levels of jurisdictions that come into play, not only the OSE, but the capacity of the City to be involved in that the regulation of wells is allocated functionally to the Office of the State Engineer. This is an item that needs to be clarified – clearly we do have some jurisdiction that has been established by some of the case law with regard to the wells that are re-drilled or replaced, renovated, whatever the case might be.

Chair Ives said from his perspective, the real interesting nexus between those wells and City jurisdiction relates to the Santa Fe River because presumably almost all of those wells are 2500 ft. or more feet below the surface of Santa Fe, but rather the shallow wells that have an interconnection to the Santa Fe River; and obviously the City has been very interested in having a living river and have allocated a number of acre feet of water to make sure we had what we refer to as a "Living River". He said we could at least look at the possibility of getting people to regulate their usage and possibly look at what studies exist on the hydrologic connection between the Santa Fe River and wells within the basin. He said this is worthwhile for the Committee to pursue but it could potentially take a significant allocation of funding and other things to get answers.

Ms. Randall thinks this is an essential avenue to pursue even if we don't have some kind of jurisdictional impact because ultimately there is going to be an educational impact that the Committee could have. She said there will be a level of consciousness that needs to be raised because there is this kind of entitlement that this is my water and it isn't, it is our water. She said there are a lot of misconceptions and it is a matter of education and understanding. She said whether it comes down to a legal discussion, there should be an ethical and resource discussion and this is worth pursuing.

Ms. Trevizo said what she is hearing is that there is probably a partnership that needs to be harbored between the City of Santa Fe and the Office of State Engineer. She said typically right now the City is in a regulator/permittee relationship, and through the Committee there is a possibility that they can act as an unbiased liaison to harbor some cooperation for things like this.

9. REBATE ANALYSIS

This agenda item was postponed until the next meeting when Mr. Pushard and Mr. Michael will have information on the rebate analysis that they are working on.

MATTERS FROM STAFF

Ms. Trevizo mentioned that Lise Knouse has resigned. A thank you letter will be sent to Ms. Knouse. The Committee Members were asked to try and solicit potential members. Ms. McDonald suggested that an ad be put in the newspaper about the vacancy.

MATTERS FROM THE COMMITTEE:

10. 2014 Legislative Recommendations

Chair Ives would like to invite the Legislative Members to the November meeting and give them some proposals that the Committee might have for the 2014 Legislative Session for water conservation measures. He asked the Committee Members to look at the Executive Summary on what recommendations they can make in State law that would promote water conservation across the state.

ITEMS FOR NEXT AGENDA – Tuesday, October 8, 2013

- Open Meetings Act Presentation
- Demand Elasticity, if available
- *Captions:* September 20, 2013 @ 3 p.m.
- Packet Material: September 25, 2013 @ 3 p.m.
  Ms. Trevizo asked the Committee Members to try and meet the deadlines for packet material, including handouts.

ADJOURNMENT

There being no further business to come before the Committee, the Chair called for adjournment at 6:15 p.m.

Approved by:

_____

Councilor Peter N. Ives, Chair

Respectively submitted by:

Jo Ann G. Valdez, Stenographer

MEMORANDUM

TO: **City of Santa Fe Public Utilities Committee**
City of Santa Fe Water Conservation Committee
Buckman Direct Diversion Board

FROM: **Rick Carpenter, Water Resources and Conservation Manager**

VIA: **Nick Schiavo, Acting Public Utilities Department and Water Division Director**

DATE: **September 20, 2013**

SUBJECT: Update on Drought, Monsoon, and Water Resource Management

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CURRENT UPDATE – GENERAL WATER RESOURCE MANGEMENT

As the Committee/Board is aware, our region is still suffering through a severe drought. Our region has gone through two consecutive years of record drought and heat. It is now apparent that we are wrapping up a third consecutive year of severe drought and heat which will present significant challenges to all water purveyors, utilities, and irrigators going forward into next year. Even though much of the State and our region have received moderate monsoonal rains overall (July – September), most of the state of New Mexico remains in "extreme" drought conditions. New Mexico appears to be the epicenter of the western U.S. drought. Although, rainfall associated with the September monsoonal flow produced record-breaking rainfall totals across the state, including the Santa Fe area. Weather prediction models indicate that, at least through October of this year, drought conditions in the southwest (especially Arizona and New Mexico) should improve slightly, but that overall drought conditions will still persist. Above average temperatures are also expected. Snowpack accumulation predictions for the coming winter are still somewhat nebulous but may be below normal according to some models.

This current drought is extreme, but what sets it apart from previous extreme droughts is that, absent significant winter snow the rest of this year, the region will enter into next spring and summer without very much carry-over water in regional reservoirs – they are at low levels (except for the local McClure reservoir in Santa Fe). This condition could make next year much more challenging than the current year has been. However, the City of Santa Fe has invested in a robust and diverse portfolio of four distinct water supply sources that allows for flexibility in meeting demand: Buckman well field, City well field, Canyon Road Water Treatment Plant on the Upper Santa Fe River, and the Buckman Direct Diversion on the Rio Grande**.**

Earlier this year, BoR/USACoE models indicated the probability of critically low flows in the Rio Grande at Otowi Gage, and they were correct - the last few months have seen flows as low as about 350 cubic feet per second (CFS). In a "normal" year flow ought to be around 1,000 cfs or more. However, during the prolonged rains of September 10th – 17th, the record-breaking rains produced flows exceeding 8,000 cfs at times at Otowi Gage.

Since CRWTP and BRWTP have been unable to produce very much water lately, City and Buckman wells are providing most of the water supply to meet demands.

LOCAL CONDITIONS

Source of Supply Utilization Summary

August 2013

City Wells	79.01mg	242.47af
Buckman Wells	208.40mg	639.55af
CRWTP	72.57mg	222.70af
BRWTP	8.18mg	25.10af
Other Wells	*0.10mg*	*0.32af*

Upper Santa Fe River/CRWTP

	Reservoir Level	Santa Fe Snow Gage	Reservoir Inflow
September 18, 2013	60.3%	0.0 inches	18.40 MGD
5-Year Average This Date (2008 – 2012)	54.4%	0.0 inches	1.56 MGD

Heading into September, water resource managers for the City were expecting the Canyon Road Water Treatment Plant to experience significant supply shortfalls later this year and into next year – due in part to severely reduced inflows resulting from the drought, but also due to the planned construction projects inside of the reservoir footprints. However, as of September 18th, and due to the recent heavy rains, storage in McClure reservoir is up from 29.0% to 72.8%, and increasing daily (inflow = 18.35 mgd on 9/18/13). Flows into Nichols are being by-passed due to construction. Total combined storage for both reservoirs is therefore at 60.3% of capacity. Inflows are expected to continue for several more days and so McClure could actually reach close to full capacity by the time inflows decrease back down to normal levels for this time of year.

Buckman Regional Water Treatment Plant

The last few months have seen flows as low as about 350 cubic feet per second (CFS). In a "normal" year flow at this time of the year ought to be around 1,000 cfs or more. However, during the prolonged rains of September 10th – 17th, the record-breaking rains produced flows exceeding 8,000 cfs at times at Otowi Gage. Turbidity and suspended sediment has also been very high, especially following intense monsoonal rain storms (as high as 7,020 ntu). For this reason, the BDD Project has been more-or-less shut down during the months of July, August, and most of September.

Rio Grande Basin

Surface flows in the Rio Grande and its tributaries have been well below normal, storage levels in regional reservoirs are very low currently (but rising due to recent storms), and the federal BoR recently stated that if there is no "meaningful moisture" received this winter/spring then this would mark the lowest water levels ever in New Mexico reservoirs prior to entering into a new irrigation season. The recent rains have helped river flows (at least temporarily) and regional reservoirs are receiving needed inflow, but normal to above normal snow pack is still needed this coming winter or reservoir levels will still be critically low heading into next irrigation season. Recent weather forecast models seem to be suggesting that snow pack this coming winter may be disappointing.

Note: Wild Earth Guardians has recently filed a notice of intent (NOI) to file suit against Middle Rio Grande Collaborative Program signatories, citing violations of the current Biological Opinion under the auspices of the Endangered Species Act. However, the BDD Project is not a signatory to the Collaborative Program so the Project is not currently named. The outcome of the NOI and possible subsequent law suit are uncertain at this time.

San Juan Basin

The streamflow forecast for the San Juan River Basin is 75 percent of the 30 year avg. (1981-2010) for 2013. San Juan-Chama contractors have received full allocation of San Juan-Chama Project water this year (up from a previous forecast of only 80%). However, most of this water has already been used by the larger purveyors and irrigators in the middle Rio Grande, and so they are no longer calling for/releasing their water. The water that is currently in the Rio Grande at Otowi Gage is therefore not so much imported San Juan-Chama water as it is environmental flows and native Rio Grande water. However, when water quality conditions permit, the BDD Project is still able to call for and receive its allocation of San Juan-Chama water.

Albuquerque Bernalillo County Water Utility Authority recently announced at a public meeting that as soon as water quality in the Rio Grande clears up, they intend to start calling for some of their banked San Juan-Chama water from Abiquiu Reservoir (and reduce use of their local groundwater wells).

It should be stressed that, conditions could significantly worsen for San Juan Chama Project deliveries next year if the drought persists (i.e., low snow pack this coming winter in the San Juan Basin), due to a lack of carry-over storage in Heron Reservoir and other reservoirs in the system. If conditions do not change, after deliveries are made out of Heron Reservoir this year, that reservoir will be heading into the next water –year at very low levels.

City of Santa Fe, New Mexico

memo

Date: September 27, 2013

To: Water Conservation Committee

From: Laurie Trevizo, Water Conservation Manager

Via: Rick Carpenter, Water Resources and Conservation Manager
Nick Schiavo, Public Utilities Department and Water Division Director NSA

RE: Update on Water Conservation Office Upcoming Fall 2013 Events

The City of Santa Fe Water Conservation Office has a number of upcoming events which will provide education and outreach opportunities to a variety of audiences.

Green Lodging Initiative:
October 3, 2013

The Water Conservation Office has a partnership with the Santa Fe Watershed Association and will be participating in a Working Group Meeting for the Green Lodging Initiative. We provide the hotels and the Green Team with information about the water conservation requirements, resources and incentives that are available in Santa Fe.

Rio Rancho Water Festival:
October 28-29, 2013

Rio Rancho (and a number of other organizations) provides presentations for the Santa Fe Water Fiesta, and we reciprocate for theirs. Festival activities cover a wide range of core curriculum areas including language arts, math, science, social studies, visual arts, and health & wellness. Presenters demonstrate water related facts, concepts and values through fun, hands-on learning activities.

Spooky Showerhead Swap:
October 31, 2013

The following message will be included in the October Utility Bills:

"Is your showerhead scarier than the Bates Motel?

Give your water bill a treat and replace your spooky showerhead. On October 31st, bring your scary old high flow showerhead to the Water Division 801 W. San Mateo between 9am and 2pm and receive a EPA WaterSense approved 2.0 gallon per minute showerhead. This is a limited, one day only, promotion while supplies last. Installing efficient showerheads in one of the easiest ways to improve water efficiency in your home and reduce your water and energy bills and environmental impact."

Project WET Teacher Workshop:
November 2, 2013

Education provides one of the best approaches to ensuring responsible behavior toward our most precious resource, water. Project WET is a water education program for teachers, with the goal of facilitating awareness, appreciation, knowledge and stewardship of water. This program includes curriculum and activities for grades k-12 designed by educators for educators to present information about water in many different formats, ranging from large and small group learning, whole body activities, laboratory investigations, discussion of water topics both local and global, and involvement in community service projects.

QWEL (Qualified Water Efficient Landscaper) Training:
Registration Deadline: October 30, 2013
Training: November 5-6 & 12-14, 2013

The City of Santa Fe and the New Mexico Water Conservation Alliance will be co-sponsoring Qualified Water Efficient Landscaper (QWEL) training March 18-22, 2013. QWEL is an approved U.S. EPA WaterSense Irrigation Auditor certification program. Landscape professionals who achieve and maintain QWEL certification and have a current City of Santa Fe business license will become approved contractors for the City of Santa Fe Water Conservation Irrigation Efficiency Rebate Program. Training is limited to 25 participants. Invitations will be mailed and emailed (if available) to landscape design and installation firms.

11th Annual Children's Poster Contest:
Theme: Saving Water is Always in Season!
Marketing: News Release October 4, 2013
Submittal Deadline: November 22, 2013
Judging: January 2014 (Day to be determined)

This year's theme is Saving Water is Always in Season! The annual poster calendar is a favorite in the Santa Fe community. Winners of the poster contest receive a prize package that includes conservation kits for saving water at home. The grand prize winning poster is displayed for a year on the back of a city bus and on the calendar cover. First through third place winners will be featured monthly in the 2015 calendar. In the 10th Annual Poster Contest, which ended in January, nearly 300 posters were submitted, the winners of which will be showcased in the 2014 calendar which is currently in the design process.

Ethics and Open Government

Presented to:

Water Conservation Committee

By the City Attorney's Office

October 8, 2013

Laws To Be Reviewed

- An overview of the following will be provided, focusing on provisions applicable to municipalities:
  - City of Santa Fe Ethics Ordinance, SFCC § 1-7, et seq.
  - New Mexico Governmental Conduct Act, § 10-16-1, et seq.
  - New Mexico Open Meetings Act (OMA), § 10-15-1, et seq.
  - New Mexico Inspection of Public Records Act (IPRA), § 14-2-1, et seq.

Santa Fe Code of Ethics

- General Rules
  - Proper operation of City government requires (§ 1-7.1):
    - That public officials and employees be independent, impartial and responsible to the people
    - That decisions and policy be without conflicts of interest
    - That public office or employment not be used for personal gain
    - That the public has confidence in the integrity of its government
  - Purpose and intent (§ 1-7.2):
    - Standards of behavior for public officials and employees that ensure decisions are made without consideration of personal benefit
    - Provide clear guidance by clarifying acts allowed and prohibited
    - Adopt a code that suits the local concerns and needs

Code of Ethics

- Conflict of Interest
  - Definition (§ 1-7.5): a specific and identifiable prospect of pecuniary gain or loss (not shared with the public) from an official act of any public official or employee to:
    - Self or Family member
      - Family defined as household members, children, step-children, brothers, sisters, parents, step-parents, domestic partner and all persons claimed as dependents on latest tax return.
    - Business owned by self or household member
    - Employer, client or customer
    - Non-profit where public official, employee or household member is an officer or director
    - Contributor to council or mayoral race in last 2 years (if over $1,000 for council, or if over $2,500 for mayor)
  - Disclosure (§ 1-7.7(L))
    - Method
      - For member of governmental body, at a public meeting of that body
      - For the City Manager, City Attorney or city Clerk, to the Governing Body at a public meeting
      - For a City employee, to the City Manager
    - When there is a conflict, pubic official or employee shall not perform an official act or attempt to influence another person to perform an official act in a conflicted matter

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Code of Ethics (cont.)

- Gifts (§ 1-7.7(A))
  - General rule: public officials shall not accept gifts or other financial benefits from persons or entities that have a prospect of pecuniary gain or loss from an official act (other than gains or losses shared with a substantial segment of the general public).
  - Exceptions:
    - Occasional meal or non-pecuniary gift less than $50
      - $250 limit for Governing Body, City Manager, City Attorney and City Clerk if related to official duties, must report within 10 days and post on website
      - $250 limit for employees if related to official duties and prior approval by City Manager, must report immediately and post on website
    - Other: certain awards, campaign contributions, commercially reasonable loan, certain real property transactions

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Code of Ethics (cont.)

Political Activity

- Improper Political Campaigning (§ 1-7.7(H))
  - Public official or employee shall not knowingly request or authorize another to request a subordinate to make a campaign contribution or provide service to a campaign
    - All public employees are subordinates of the Governing Body(§ 1-7.5)
  - Public official or employee shall not engage in political campaigning while on duty
  - No use of City resources for campaigns (funds, equipment, vehicles, etc.
- No promise of an appointment to any City position as a reward for political activity or contribution (§ 1-7.7(I))

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Code of Ethics (cont.)

- Honoraria (§ 1-7.7(J))
  - Public official shall not request or receive an honorarium for a speech or service rendered in the performance of his or her official duties
  - Reasonable reimbursement for meals, lodging or travel expenses are permissible
    - Reimbursements shall be reported within 10 days
- Annual Disclosures (§ 1-7.6)
  - Upon election/appointment and each July thereafter public officials and department heads shall disclose:
    - Name, address phone number
    - Employer if other than the City
    - Professional, occupational or business licenses
    - For-profit and non-profit board memberships
    - Businesses owned

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Code of Ethics (cont.)

- Representation of Private Interests (§ 1-7.7(C)(3))
  - Governmental Body Members shall not accept monetary compensation to advise, consult or represent on an item before the governmental body, during the term of office or 1 year after.
- Other Important provisions:
  - Quasi Judicial Proceedings
  - Transactions with the City
  - Representation of Private Interests
  - Misuse of confidential information
  - Misuse of City resources
  - Whistleblower Protection
- Enforcement and Penalties:
  - Code of Ethics enforced by the ECRB (§ 1-7.9)
  - Penalties include public reprimand, fines, recommendation of removal or suspension, referral to the District Attorney (§ 6-16.7)

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New Mexico Governmental Conduct Act

- General Rules for public officer or employee (§ 10-16-3):
  - Treat their position as public trust and use powers/resources only to advance the public interests, not obtain personal benefits or pursue private interests
  - Conduct themselves in a manner that justifies the confidence placed in them by the people
  - Full disclosure of real or potential conflicts of interest shall be a guiding principle for determining appropriate conduct
  - Make reasonable efforts to avoid undue influence and abuse of office

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NMGCA (cont.)

- Prohibited Political activities (§ 10-16-3.1):
  - No coercion to contribute, vote or participate in political activity
  - No threats to deny promotion or pay increase
  - No requiring employee contribution or event ticket
  - No advising an employee to take part in political activity
  - No use of governmental property for non-authorized purposes
- Official Acts for personal financial interest prohibited (§ 10-16-3.1):
  - Knowing and willful violation is a 4th degree felony
  - Public officer or employee is disqualified from engaging in any official act directly affecting their financial interest

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NMGCA (cont.)

- Other important provisions:
  - Honoraria
  - Confidential information
  - Contracts involving current or former officers or employees
  - Prohibited bidding
- Enforcement and penalties (§ 10-16-14, 17, 18):
  - Enforced by Attorney General or District Attorney
  - Penalties include discipline, dismissal, demotion or suspension
    - Criminal penalties include misdemeanor (unless otherwise specified) and up to $1,000 fine
    - Civil penalties of $250 per violation up to $5,000

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Open Meetings Act

- NEW
  - Meeting notices published 74 hours in advance
    - No amendments within 72 hours
  - AG must be informed of emergency meetings within 10 days after the emergency meeting
    - Emergency: unforeseen circumstances that will likely result in injury or damage to persons or property or substantial financial loss to the public body
- General Rules (§10-15-1(A)):
  - A representative government is dependent upon an informed electorate
  - All persons are entitled to the greatest possible information regarding the affairs of government and the official acts of those officers and employees who represent them
  - The formulation of public policy or the conduct of business by vote shall not be conducted in closed meetings
  - All meetings of any public body shall be public meetings, all persons shall be permitted to attend and listen, reasonable efforts shall be made to accommodate use of audio and video devices

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Open Meetings Act (cont.)

- Applicability (§10-15-1(D)):
  - All meetings by of a quorum of members of any board, commission, administrative adjudicatory body or other policymaking body of a municipality or political subdivision held for the purpose of formulating public policy
  - Any meetings at which the discussion or adoption of any proposed resolution, rule regulation or formal action occurs and at which a majority or quorum of the body is in attendance
  - Any closed meetings, shall be held only after reasonable notice to the public

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Open Meetings Act (cont.)

- Meeting Notices (§10-15-1(D) and (F)):
  - Annual determination by the Body of reasonable notice to the public
    - Notice shall include broadcast stations and newspapers that have provided written request for such notice
  - Shall include an agenda containing a list of specific items of business to be discussed or transacted or information on how the public may obtain a copy of such an agenda
  - Agenda shall be available at least 72 hours before meeting (exceptions for emergencies) (City Resolution requires first agenda posting 72 hours in advance)
- Minutes (§10-15-1(G)):
  - The policymaking body shall keep written minutes of all its meetings including:
    - Date, time and place of meeting
    - Names of members in attendance and absent
    - Substance of the proposals considered and a record of votes
    - Minutes shall be prepared within 10 days, shall be approved at the next meeting with a quorum and are not official until approved by the policymaking body

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Open Meetings Act (cont.)

- Exceptions (§10-15-1(E)), with proper notice, the portions of meetings dedicated to the following topics may be conducted in closed session such as:
  - Licenses. Discussion of the issuance, suspension, renewal or revocation of a license, final action in public.
  - Personnel. Discussion of limited personnel matters (hiring, promotion, demotion, dismissal, assignment, resignation, or investigation), final action in public
  - Adjudication. Deliberations in connection with an administrative adjudicatory proceeding
  - Collective Bargaining. Discussion of bargaining strategy preliminary to collective bargaining negotiations
  - Procurement. Certain discussions regarding procurement (sole source over $2,500 or competitive bids), final action in public
  - Litigation. Attorney-Client privileged discussions regarding threatened or pending litigation
  - Real property and water. Discussion of real property or water right purchase, acquisition or disposal
- Entering closed session: requires a majority vote of a quorum, the subject and authority for closure shall be stated with reasonable specificity in the motion and an individual vote shall be taken in open meeting
  - Scope: Only those subjects announced or voted upon prior to closure may be discussed
- Enforcement and penalties: AG, DA or individual enforcement; penalties include misdemeanor and/or fines, attorneys fees and costs (§10-15-3)

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Inspection of Public Records Act (IPRA)

- NEW
  - Draft documents that are not otherwise protected are public record
  - Unless there is a specific exclusion, the document is public record. No "rule of reason"
- General Rules:
  - All persons entitled to greatest possible information regarding the affairs of Government and the official acts of public officers and employees (§ 14-2-5)
  - Providing persons with information is an essential function of a representative government (§ 14-2-5)
  - Every person has the right to inspect public records (§ 14-2-1(A))
  - City must designate at least one public records custodian (§ 14-2-17)

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IPRA (cont.)

- Relevant statutory exemptions (§ 14-2-1(A):
  - Letters or memoranda which are matters of opinion in personnel files (including letters of reference)
  - Certain law enforcement records containing confidential sources, methods, information or individuals accused but not charged with a crime
  - Tactical response plans or procedures that could be used to facilitate the planning or execution of a terrorist attack
  - "As otherwise provided by law"
    - Includes federal, state and local laws and includes judicial decisions
    - Examples include attorney client communications, medical information, financial information, privacy laws, etc.

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IPRA (cont.)

- Procedure for Requesting (§ 14-2-8):
  - Oral or written/emailed request (only written request requires response) to the public records custodian containing name address and phone number
  - Request shall identify the records sought with "reasonable particularity"
- Response Timelines (§ 14-2-8):
  - Immediately or as soon as practicable but not later than 15 days
  - Not required to create a record to respond to a request
  - Notice required if taking longer than 3 days
  - Longer deadlines for burdensome or broad requests (§ 14-2-10)
- Denials:
  - Any denials shall be in writing with a description of records sought, person making the denial and shall be delivered within 15 days of the request (§ 14-2-11)
- Enforcement:
  - An enforcement action may be brought by AG, DA or requestor (§ 14-2-12)
- Penalties:
  - Damages up to $100 per day, costs and attorneys fees (§ 14-2-11)

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Questions?

- CoSF Ethics Ordinance
- NM Governmental Conduct Act
- NM Open Meetings Act
- NM Inspection of Public Records Act
- Other

A review of City of Santa Fe Water Conservation Rebate Programs

Purpose

The purpose of the review is to understand the effectiveness of the city's rebate programs in order to identify the programs that have been most effective and those that have the potential to provide the largest water savings.

Overview

This paper is primarily based on information from the City of Santa Fe Annual Water Reports for the years of 2009 through 2012. The most recent, the 2012 Annual Water Report, is dated April 2013. The reports are available at http://www.santafenm.gov/index.aspx?NID=2300. The reports include information to 2004, and some of that is incorporated into this paper. A chronological summary of the rebate programs is included in Appendix 1.

Table 1 summarizes details on the population, number of connections and number of rebates. Although the city water utility serves more people than are in the metropolitan statistical area, rebates are available only to city residents. As of July 1, 2012, the city had a population of approximately 69,200[1]. Based on a 1% annual growth rate, the population at the same date in 2013 is estimated to be 69,900.

Commercial users include commercial, industrial and institutional accounts. To date, almost all commercial rebates have been awarded to lodging accounts (hotels/motels). For brevity, the term "commercial" refers to these accounts and rebates.

The term "residential (non-commercial)" refers to residential accounts and rebates. These might include both single and multi-family residential accounts. However, no rebates have been awarded to multi-family residential accounts; therefore, "residential (non-commercial)" refers to single-family residential accounts and rebates.

According to the annual water reports and city records, to the end of 2012, the city had awarded 7,959 rebates, and as of July 1, 2013, a total of 8,501. According to city records, there were in the range of 55,000 water utility connections, distributed among commercial, single-family residential and multi-family and other accounts as indicated below. Based on these values, the table indicates percentages of rebates relative to population and connections.

Table 1
Rebate Summary

	2012	2013 YTD
Population	69,200	69,900 est[a]
Total Rebates	7,959	8,501
• Commercial	1,371	1,632
• Residential (non-commercial) **all rebates to single-family residential accounts*	6,588	6,869
Total Connections	54,949[b]	55,200[c]
• Commercial (approximate)	16,480[d]	16,560[d]
• Single-family Residential (approximate)	30,220[d]	30,360[d]
• Multi-family Residential and Others (approximate)	8,240[d]	8,280[d]
Total Rebates as percent of Population	11.5%	12.2%
Total Rebates as percent of Total Connections	14.5%	15.4%
• Commercial Rebates as percent of Commercial Connections	8.3%	9.9%
• Residential Rebates as percent of Single-family Residential Connections	21.8%	22.6%

[a]Population estimated at 1.0% annual growth rate
[b]From City Water Data
[c]Connections estimate at 0.79 times population
[d]Commercial, single-family residential and multi-family approximations are based on records that connections are distributed at 30%, 55% and 15% respectively among the categories.

[1] U.S. Census Bureau, Population Division. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2012. Found at http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml, September 1, 2013.

Number of Rebates

Commercial Rebates

Commercial rebates have included high efficiency toilets (Flushometer, tank-type and hotel/motel), water-free urinals, high efficiency clothes washers, air-cooled ice machines, dishwasher replacements, and rebates for commercial process efficiency. As of July 2013, a total of 1,632 commercial rebates had been awarded. Some 97% were for high-efficiency toilets, and almost three-quarters of these were at hotels and motels. Almost all of the rebates have been awarded beginning in 2010. Annual details are shown below.

Table 2
Number of Commercial Rebates

	High-Efficiency Toilets				High-Efficiency Clothes Washers					
Year	Flushometer Valve	Tank Type	Hotel/Motel	Water Free Urinal	Replacement for top loader	Exchange for front loading washer	Air Cooled Ice Machine	Dishwashers	CPE (Commercial Process Efficiency)	Total
2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2006	NA	NA	NA	NA	NA	NA	1	1	NA	2
2007	NA	NA	NA	NA	NA	NA	5	0	NA	5
2008	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
2010	197*	192	459	24	2	2	0	0	1	877
2011	2	13	461	5	0	0	0	0	0	481
2012	0	6	0	0	0	0	0	0	0	6
2013 YTD	0	0	261	0	0	0	0	0	0	261
Total	199	211	1181	29	2	2	1	6	1	1632

*Was this at hotel/motel?

Residential (non-commercial) Rebates

As indicated previously, although residential users might include both single and multi-family accounts, no rebates have been awarded to multi-family residential accounts; therefore, residential rebates are entirely single-family residential rebates.

As of July 2013, a total of 6,869 residential rebates had been awarded, including indoor devices (hot water recirculators high-efficiency toilets, and high-efficiency clothes washers), and outdoor devices (rain barrels, water harvesting technologies, and devices including rain and moistures sensors, evapotranspiration controllers, and pressure reducing valves).

Almost three-quarters of the total residential rebates have been for indoor devices. With the exception of the rain barrels that were distributed from 2004 to 2008, almost all of have been awarded beginning in 2010. Annual details are shown below.

Table 3
Number of Residential Rebates

	Indoor Devices					Outdoor Devices										
Year	Hot Water Recirculators	High-Efficiency Toilets	Clothes Washing Machines	HE Clothes Washer replacement for top loader	HE Clothes Washer exchange for front loading washer	Rain Barrels	Rain Barrel 50-99 gal	Rain Barrel 100-199 gal	Rain Barrel 200-299 gal	Water Harvesting	Rain Sensors	Moisture Sensors	ET Controllers	Pressure Reducing Valve	Other Outdoor Devices	Annual Totals
2004	62	NA	232	NA	NA	561	NA	NA	NA	NA	NA	NA	NA	NA	NA	855
2005	46	NA	332	NA	NA	291	NA	NA	NA	NA	NA	NA	NA	NA	NA	669
2006	36	NA	434	NA	NA	403	NA	NA	NA	NA	NA	NA	NA	NA	NA	873
2007	49	NA	456	NA	NA	368	NA	NA	NA	NA	NA	NA	NA	NA	NA	873
2008	34	NA	547	NA	NA	113	NA	NA	NA	NA	NA	NA	NA	NA	NA	694
2009	43	NA	460	NA	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	503
2010	NA	236		782	35	NA	15	5	19	2	0	0	0	0	0	1094
2011	NA	174		266	35	NA	4	2	2	2	0	0	0	0	0	485
2012	NA	254		228	41	NA	12	3	1	1	2	0	0	0	0	542
2013 YTD	NA	147	0	112	14	NA	7	0	1	0	0	0	0	0	0	281
Total	270	811	2461	1388	125	1736	38	10	23	5	2	0	0	0	0	6869

Rebate Amounts

Commercial

From 2004 to 2009, rebates were $200 for air cooled ice machines and $400 for replacement dishwashers. One air-cooled ice machine and six dishwashers were installed.

In 2010, rebates of $504 were available for high-efficiency toilets and $630 for water-free urinals. Rebates were also available for washing machine replacements and commercial process efficiency improvements. Some 848 high-efficiency toilets and 24 water free urinals were installed. Four high efficiency clothes washers were installed and one commercial process efficiency rebate was awarded.

From 2011 to the current date, rebates for high efficiency toilets range from $125 to $500, and for high efficiency clothes washers from $150 to $350. There is a $500 rebate for water-free urinals. During this period, rebates were awarded for high-efficiency toilets (743), and for water-free urinals (5). No rebates were provided for high-efficiency clothes washers.

Table 4
Commercial Rebate Amounts

	High-Efficiency Toilets				High-Efficiency Clothes Washers					
Year	Flushometer Valve	Tank Type	Hotel/Motel	Water Free Urinal	Replacement for top loader	Exchange for front loading washer	Air Cooled Ice Machine	Dishwashers	CPE (Commercial Process Efficiency)	Number of Rebates
2004-2009	NA	NA	NA	NA	NA	NA	$200	$400	NA	7
2010	$504	$504	$504	$630	$480	$180			$874	877
2011	$500	$250	$125	$500	$350	$150				481
2012	$500	$250	$125	$500	$350	$150				6
2013	$500	$250	$125	$500	$350	$150				261

Residential (non-commercial)

From 2004 to 2009, rebates of $100 were available for hot water recirculators and for clothes washing machines and a $30 rebate was available for rain barrels. Rebates were awarded for 279 hot water recirculators, 2,461 clothes washing machines, and 1,736 rain barrels.

In 2010, rebates were available for high-efficiency toilets ($175), high efficiency clothes washer replacements ($180 for front loader and $480 for top loader), for rain barrels ($12 to $50), for water harvesting, rain sensors, moisture sensors, ET controllers, pressure reducing valves and other outdoor devices. Rebates were awarded for high-efficiency toilets (236), high efficiency clothes washer replacements (35 for front loader and 782 for top loader), for rain barrels (39), and for water harvesting (2).

Rebates for 2011 to the present are similar to the 2010 rebates, except that the front-loader clothes washer rebate was reduced to $150 and the top-loader clothes washer rebate was reduced to $350. During this period, rebates were awarded for high-efficiency toilets (811), front loader clothes washers (125), top loader clothes washers (1,388), rain barrels (71), water harvesting (5) and rain sensors (2).

Table 5
Residential Rebate Amounts

Year	Indoor Devices					Outdoor Devices									
	Hot Water Recirculators	High-Efficiency Toilets	Clothes Washing Machines	HE Clothes Washer replacement for top loader	HE Clothes Washer exchange for front loading washer	Rain Barrels	Rain Barrel 50-99 gal	Rain Barrel 100-199 gal	Rain Barrel 200-299 gal	Cisterns	Rain Sensors	Moisture Sensors	ET Controllers	Pressure Reducing Valve	Other Outdoor Devices
2004 to 2009	$100	NA	$100	NA	NA	$30	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	NA	$175	NA	$480	$180	NA	$12	$25	$50	$0.25	$40	$75	$300-$750	$120-$525	$2-$5
2011 to 2013	NA	$175	NA	$350	$150	NA	$12	$25	$50	$0.25	$40	$75	$300-$750	$120-$525	$2-$5

Cost of Appliance or Device

When planning rebate amounts, the city estimates water savings and then sets a rebate amount. This amount is typically not compared to actual costs to the end-consumer. However, the end-consumer, whether commercial or residential, is usually very aware of out of pocket outlays.

Rebates have ranged from $2 to $2000, while the costs of the end appliance or device range in cost from less than $5 to more than $20,000.

Table 6
Cost of Appliance or Device

Commercial Devices	Low Cost, $	High Cost, $	Median Cost ,$
HE Toilet - Flushometer Valve	0	0	
HE Toilet - Tank Type	150	1,500	300
Water-Free Urinal	300	1,200	600
Clothes Washer - Replacement for top loader	600	1,400	800
Clothes Washer - Exchange for front loading washer	600	1,400	800
Air Cooled Ice Machine	1,787	4,725	2,156
Dishwashers	2,799	24,368	5,681
Residential Devices			
Hot Water Recirculators	80	210	170
High-Efficiency Toilets	150	1,500	300
Clothes Washing Machines	600	1,400	800
HE Clothes Washer replacement for top loader	600	1,400	800
HE Clothes Washer exchange for front loading washer	600	1,400	800
Rain Barrel 50-99 gal			210
Rain Barrel 100-199 gal			325
Rain Barrel 200-299 gal			475
Cisterns			**1/gal est**
Rain Sensor	16.18	62.51	18.91
Moisture Sensor			**100 est**
ET Controllers	316	1495	500
Irrigation Pressure Reducing Spray Head	4.50	23.18	8.40
Irrigation Pressure Reducing Valve	52.61	68.15	52.61

Table 7
Relationship of the Rebate Amount and the Cost of the Device to the Number of Rebates Awarded

Commercial Devices	*Rebate Amount, $	Median Cost of Device, $	No. of Rebates Awarded
HE Toilet - Flushometer Valve	500	383	199
HE Toilet - Tank Type	125 or 250?	300	211
Water-Free Urinal	500	600	29
Clothes Washer - Replacement for top loader	350	800	2
Clothes Washer - Exchange for front loading washer	150	800	2
Air Cooled Ice Machine	200 (2004 to 2009)	2,156	1
Dishwashers	400 (2004 to 2009)	5,681	6
Residential Devices			
Hot Water Recirculators	100 (2004 to 2009)	170	270
High-Efficiency Toilets	$175	300	811
Clothes Washing Machines	100 (2004 to 2009)	800	2,461
HE Clothes Washer replacement for top loader	350	800	1,388
HE Clothes Washer exchange for front loading washer	150	800	125
Rain Barrel 50-99 gal	12	210	38
Rain Barrel 100-199 gal	25	325	10
Rain Barrel 200-299 gal	50	475	23
Cisterns	0.25/gallon	**1/gal est**	5
Rain Sensor	40	19	2
Moisture Sensor	75		0
ET Controllers	300-$750	500	0
Irrigation Pressure Reducing Valve **	120	52.61	0
Irrigation Pressure Reducing Spray Head	5	8.40	0

*2013 rebate amount unless stated otherwise **3/4”

It is difficult to draw conclusions from this data. For commercial users, the significant savings are not due to the relationship of the cost of the device to rebate amount, but to the amount of water saved and the resulting operating cost savings. It may be significant that there were 240 rebates awarded for tank-type high-efficiency toilets and water free urinals where the rebate was in the range of the cost of the device. There were only 11 commercial rebates awarded for clothes washers, dishwashers, and an air-cooled ice machine where the costs for the devices were 2 to more than 10 times greater than the rebate.

It may be true that residential users are sensitive to the relationship between the cost of the device and the rebate amount. Any conclusions must be based on the assumption that the numbers listed above for residential devices reflect those installed by end users and not new-home contractors.

Rebates for hot water recirculators and high-efficiency toilets amounted to more than one-half of the cost of the devices and more that 1,000 rebates were awarded. Rebates for clothes washing machines were less than 15% of the cost of the machines and almost 2500 rebates were awarded. Rebates for top loader replacements were about 45% of the cost, and almost 1,400 rebates were awarded. Rebates for front loader exchanges were about 20% of the cost and 125 rebates were awarded. Rebates for rain barrels were about 10% or less of the cost of the rain barrel, and 71 were awarded. Overall, it is difficult to draw any conclusions from this analysis. It might generally be said that rebates should be at least one-half of the cost of the device.

City Expenditures for the Rebate Program

Based on the rebate amounts, total city expenditures for rebates to date are in excess of $1,600,000. As Table 8 indicates, the majority has been from 2010 to the present, with more than half of the total in 2010.

Table 8
Rebate Program Expenditures

Year	Commercial Expenditures, $	Residential Expenditures, $	Total $
2004	0	46,230	46,230
2005	0	46,530	46,530
2006	600	59,090	59,690
2007	1,000	61,540	62,540
2008	0	61,490	61,490
2009	0	50,300	50,300
2010	444,706	424,216	868,922
2011	64,375	128,999	193,374
2012	1,500	130,749	132,249
2013 YTD	32,625	67,159	99,784
Total	544,806	1,076,302	1,621,108

It is also important to note that 2010 expenditures would have been higher, but the city ran out of funds for the program in August of that year. This spike in rebates was caused by the state rebate program. In 2010, the State of New Mexico offered a rebate on specific devices. The rebates for a clothes washer was $200 and were additive with city programs. This program was limited to a first come, first rebate basis with limited dollars. The rebate at the time from the city for a clothes washer was $180-$480 depending on the type.

Water Savings

The city has estimated water savings for the devices or technologies that are available for a rebate. Annual water savings in acre-feet are tabulated below:

Table X
Commercial Rebate Calculated Water Savings

Device	Flushometer Valve HE Toilet	Tank Type HE Toilet	Hotel/Motel HE Toilet	Water Free Urinal	HE Clothes Washer replacement for top loader	HE Clothes Washer exchange for front loader	Commercial Process Efficiency	Air Cooled Ice Machine	Dishwasher
Annual Water Savings, acre-feet	0.0336	0.0168	0.0022	0.0420	0.0233*	0.0088*	0.4500	0.67	1.15

*Both Commercial and Residential

Table X
Residential Rebate Calculated Water Savings

Device	Hot Water Recirculator	HE Toilet	Washing Machine	Rain Barrel	Rain Barrel 50-99 g	Rain Barrel 100-199 g	Rain Barrel 200-299 g	Water Harvesting	Rain and Moisture Sensor, ET Controller, Pressure Reducing Valve and other Outdoor Devices
Annual Water Savings, acre-feet	0.0215	0.0053	0.0250	0.0015	0.0008	0.0015	0.0031	0.000015	Not Determined

Rebate Allocation

Estimates of the value of the rebates and of how to allocate rebate resources can be based on the relationship of the rebate cost to the amount of water saved. Based on the amount of the rebate, the useful life of the water-saving device, and the water saved by the device, values can be developed for the cost of the rebate per acre foot of water saved:

$ / acre-foot saved = ($ rebate $ / years of estimated life) / annual water savings in acre-feet.

These values are shown in Table 8. Values range from $60 to almost $15,000 per acre-foot of water saved. The majority of the values are in the $1,000 to $2,000 range, which nears the average cost of production of water of $1,749 per acre-foot (May 2006).

Some of the rebates for the high-efficiency toilets are particularly expensive when related to anticipated water savings.

Table 8
Rebate Costs Related to Water Savings

Device	Application*	Rebate $	Useful Life years	Water Saved gallons per year	Water Saved acre-feet per year	$ per acre-foot saved	Status
Air Cooled Ice Machine	C	200	5	218,320	0.67	60	Discontinued 2009
Commercial Dishwasher	C	400	5	374,728	1.15	70	Discontinued 2009
Commercial Process Efficiency	C	874	10	146,633	0.45	190	Last awarded 2010
Hot Water Recirculator	R	100	10	7,006	0.0215	465	Discontinued 2009
Water-Free Urinal	C	500	10	13,686	0.042	1,190	Currently Available
HE Toilet Tank Type	C	250	10	5,474	0.0168	1,490	Currently Available
Rain Barrel 50-99 gal	R	12	10	261	0.0008	1,500	Currently Available
HE Clothes Washer replacement for top loader	C & R	350	10	7,592	0.0233	1,500	Currently Available
Rain Barrel 200-299 gal	R	50	10	1,010	0.0031	1,610	Currently Available
Water Harvesting	R	0.25	10	5	0.000015	1,670	Currently Available
Rain Barrel 100-199 gal	R	25	10	489	0.0015	1,670	Currently Available
HE Clothes Washer exchange for front loader	C & R	150	10	2,867	0.0088	1,700	Currently Available
HE Toilet	R	175	10	1,727	0.0053	3,300	Currently Available
HE Toilet Hotel/Motel	C	125	10	717	0.0022	5,700	Currently Available
HE Toilet Flushometer Valve	C	500	10	1,095	0.00336	14,900	Currently Available

*C, Commercial; Residential; C & R, Commercial and Residential

History

Although the table above show data from 2004,

2002 Annual Water Budget Requirements (adopted by Resolution 2002-55 and revised by Resolution 2003-106). All new construction served by the City water utility was required to implement stringent water conservation requirements and offset new demand through retrofitting high-use toilets, typically 3.5 or 5 gallons per flush (gpf), with low flush toilets (1.6 gpf) or by purchasing pre-1907 Middle Rio Grande surface water rights.

The City purchased 75 gallon rain barrels for distribution; 1,000 customers were able to purchase one rain barrel each for $35, a significant savings from the actual cost of $74.95. This program only lasted a few months before the supply of rain barrels was exhausted.

2003 Establishment of the Water Budget Program, also known as the Toilet Retrofit Program, was created to track the number of toilet retrofits and accumulated water savings. Pre-certifications are water credits awarded to entities that have retrofitted any number of toilets but have not designated the water credits to a future project.

2004 A Rebates Program was introduced for hot water recirculators ($100), washing machines ($100) and rain barrels ($30) resulting in water savings of 67.26 acre/feet between 2004 and 2009, when the program ended.

2005 The Water Rights Transfer Program (SFCC 1987 § 25-12). The ordinance modified offset requirements for new development. The City code now requires offsets with Middle Rio Grande surface water rights, transferred to the City, instead of toilet retrofits for commercial developments greater than 5 acre-feet and residential developments greater than 10 acre-feet.

2006

2007

2008

2009 A 1998 analysis “Water Use in Santa Fe” was updated to include additional customer sectors. These sectors (e.g. single family, apartment, office, medical, religious, schools, parks) are used in creating development water budgets. The report, Water Use In Santa Fe (2009), is available on the City’s website at http://www.santafenm.gov/index.aspx?NID=2300.

Water Demand Offset Requirements (adopted by Ordinance #2009-38). The ordinance replaced the Annual Water Budget Requirements (Toilet Retrofit Program). Outstanding toilet retrofit credits are moved into the Water Bank as they are being redeemed. Components of the new City code include:

- The development of a Water Budget and a Building Permit Requirement (SFCC 1987 § 14- 8.3): Applicants are required to offset demand through dedication of water conservation credits or transferred water rights.
- City’s Water Budget (SFCC 1987 § 25-9): Water managers are required to prepare annual accounting of current and projected supply and demand, and allocate water made available by water rights purchases, leases, and conservation measures to meet priorities, including affordable housing.
- City Water Bank (SFCC 1987 § 25- 10): A water bank was established to account for water credits derived from conservation programs and water rights transfers to offset future demand. Some of the credits are available for purchase by developers or for allocation to City priorities.
- Conservation Credit Programs (SFCC 1987 § 25-11): credits generated by water conservation rebates and water conservation contracts.
- Water Rights Transfer Program (SFCC 1987 § 25-12): requires that new commercial development greater than 5 acre-feet and residential development greater than 10 acre-feet acquire and transfer water rights to City before obtaining building permit.

2010 A new rebate program was instituted for which credits would now go into the Water Bank instead of the Water Budget Program. Rebates were offered for high-efficiency toilets (HET) ($175/residential, $504/ commercial), water free urinals ($630), high-efficiency clothes washers ($480), rain barrels ($12-$50 depending on size) and water harvesting systems ($0.25/gallon), and for commercial process efficiency, resulting in 32.4626 acre/feet of conservation credits delivered to the Water Bank.

Note: This program was funded in part with a grant from the American Recovery and Reinvestment Act of 2009. The program was ended in July 2010 due to depletion of funds.

2011 Beginning, May 1, 2011, rebates were reinstated for high-efficiency toilets (HET) ($175/ residential, $125, $250, or $500/commercial depending on type), water free urinals ($500), high-efficiency clothes washers ($150 or $350 depending on type), rain barrels ($12-$50 depending on size) and water harvesting systems ($0.25/ gallon), and for commercial process efficiency, resulting in 9.0402 acre-feet of conservation credits delivered to the Water Bank.

2012 Rebates for the same products and at the same values as 2011 were continued in 2012, resulting in 7.1504 acre/feet of conservation credits delivered to the Water Bank.

Water Conservation in Santa Fe

Save Water Santa Fe

This presentation was prepared by the Water Conservation Committee with assistance from the City of Santa Fe Water Conservation Office.

Overview

* What are the sources and uses?
* Is there enough?
* What are we doing?
* What do we need to do?

What are our sources of water?

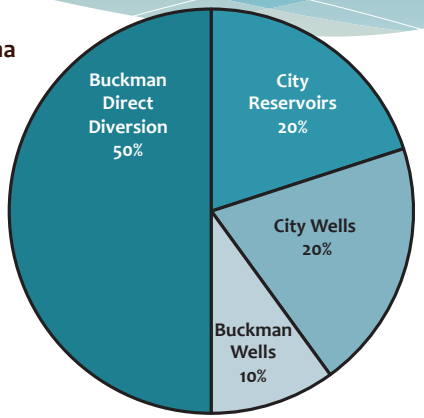
*Surface Water
- Buckman Direct Diversion (Rio Grande and San Juan-Chama Project Water)
- City Reservoirs (Santa Fe River Watershed)

*Wells
- Buckman Wells
- City Wells

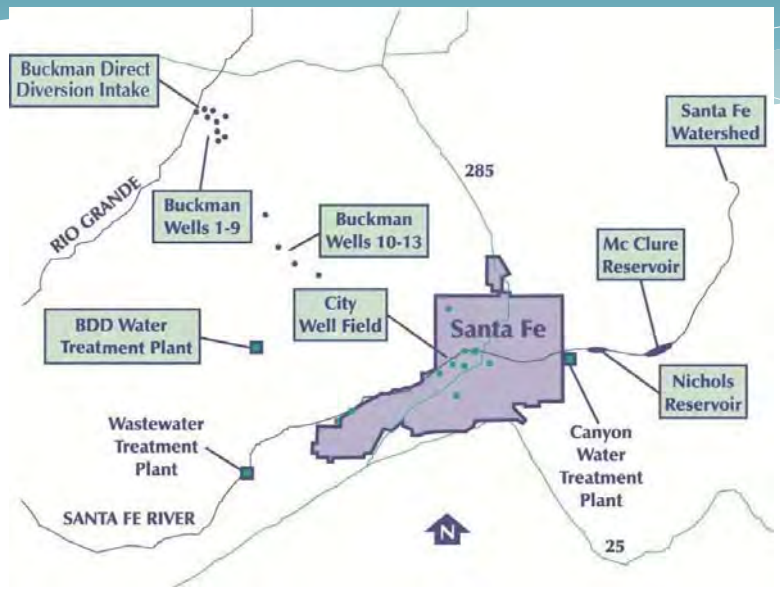
- Reclaimed Wastewater

*Conservation!

Annual Contribution from Primary Sources



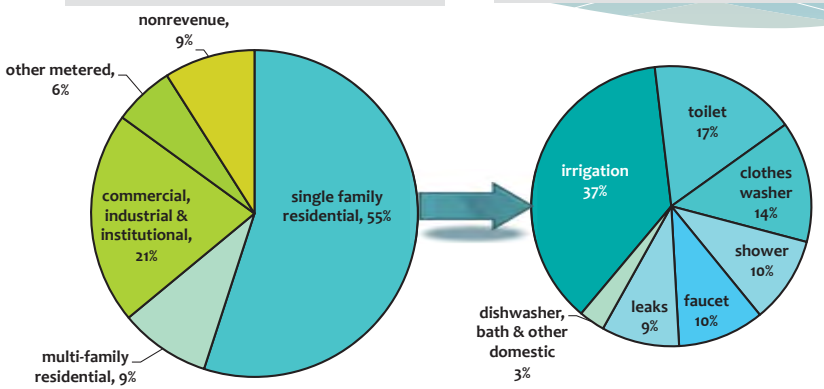
Sources of the City's Water



How Is It Used?

GPCD = annual water consumption ÷ population served

Use by Sector

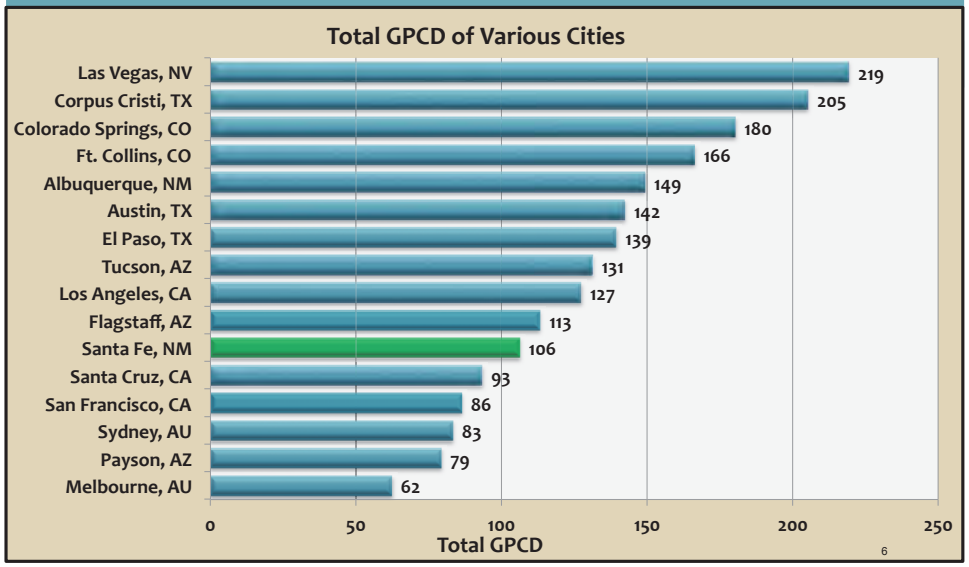


Overall 106 GPCD

Single Family Use

Single Family 59 GPCD

How do we stack up?



Is there enough?

Yes!

Our supply meets our current demand thanks to

* long-range planning,
* a diverse source portfolio
* and conservation efforts

What about in 2020? 2045?

Water for the future depends on…

* Annual precipitation and temperatures
* Length and severity of droughts
* Population
* Adaptation to climate change
* Emergency planning
* Improved conservation
* Level of concern for future generations

Conservation

* Most cost effective source of water – defers additional major capital outlays
* Preserves our groundwater "bank account"
* Helps community define *how* we want to use our limited water (i.e., conserve for what?)
* Conservation in the current 40-year plan for the city assumes a reduction in demand by over 20% by 2045!
* The city's goal is a 1% reduction of GPCD every 2 yrs.

Water Conservation does not promote development and growth

Developers must submit water budgets and buy or provide offset water. The city provides no net new water.

* Commercial Development
  < 5 acre-feet/year
* Residential Development
  < 10 acre-feet/year
* Mixed Use Development
  < 7.5 acre-feet/year

* Developer pays fee to City (or uses banked conservation credits) for water to offset new water demand.

* Commercial Development
  > 5 acre-feet/year
* Residential Development
  > 10 acre-feet/year
* Mixed Use Development
  > 7.5 acre-feet/year

* Developer transfers water rights to City to offset new water demand

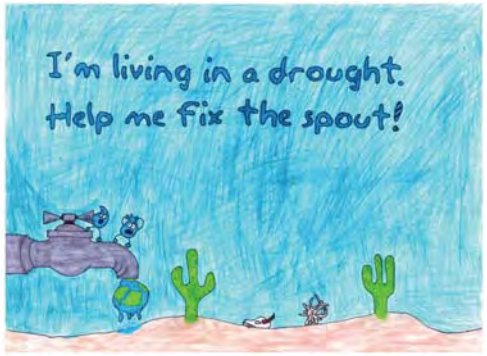
What are We Doing? Year-Round Water Conservation

* 1987 ordinance requires citizens and businesses to comply with prescribed water conservation regulations
* 2007 City Code amendment requires year round water conservation vs. short term "fixes"
* Conservation ordinances apply to ***all*** water customers and ***all*** residents in the city limits, including domestic well owners

Year-Round Water Restrictions

* Eating establishments serve water only upon request. Notice required.
* Lodging facilities change linens no more frequently than every four days
* Outdoor irrigation prohibited 10AM – 6PM from May 1 through October 31. Maximum of 3 days/week recommended
* Turf grass or seed mixes shall not contain more than 25% Kentucky Bluegrass
* Cleaning of outdoor surfaces with water is prohibited
* Shut-off nozzles are required on hoses used for hand watering
* Swimming pools must be covered when not in use
* Fugitive water from landscape irrigation is prohibited
* Specified construction must use treated wastewater
* Public bathrooms must exhibit Water Conservation signage

Conservation Programs



* Education: calendar, TV and movie ads, booths, gardens, medians, PR Plan, youth programs
* Indoor/Outdoor irrigation efficiency and audits
* Aggressive rebate program offered
* Increased training (QWEL)

Conservation Programs

Residential – *free*
* Irrigation audit

Residential – *rebates*

** See separate slide*

Residential - *info*
* Irrigation efficiency
* Water budget calculator
* Demonstration gardens

Commercial - *free*
* Audit/leak detection
* Irrigation evaluation

Commercial – *rebates*

Commercial - *info*
* Water budget calculator
* Water waste reduction ordinances

Residential Rebates

Rebates for
* High-efficiency clothes washer
* High-efficiency toilet (HET)
* Rainwater harvesting
* Irrigation efficiency

Commercial Rebates

Rebates for
* High-efficiency toilets (HET)
* Water-free urinals
* Rainwater harvesting
* Commercial process efficiency

Sample Conservation Rebates

How much are the rebates?

* High-Efficiency Clothes Washer $150 - $350
* Rainwater Catchment System $0.25 per gallon capacity
* Toilet Rebate $125 - $500
* Water-Free Urinal Rebate $500

www.water2conserve.com

Summary

* Broad portfolio of water sources available
* Ongoing year-round conservation program
* Threats: increasing local & regional demand, drought/fire and climate change
* Conservation is our cheapest water source
* Conservation awareness, education and practice help ensure water for the future

Community Involvement … The Questions

How do you conserve water?
Are you doing enough? Is conservation a hardship?

What are your priorities?

* Parks, sports fields
* Gardens – ornamental & food
* Santa Fe River
* Long showers
* Smart growth
* Tourism

What would you like the City to do?

* Increase rebate amounts?
* Increase penalties for excessive use?

What would you like us to take back to the Water Conservation Committee?

Get Involved!

* Conserve!
* Take advantage of rebates!
* Join the Water Conservation Committee or one of our working groups
* We're actively recruiting water experts and motivated citizens

For Further Info

Water Conservation Committee Education and Outreach Working Group

* Stephen Wiman - skwiman@earthlink.net
* Tim Michael – timmichael@comcast.net
* Giselle Piburn – luminous@cybermesa.com
* Grace Perez – giperez@earthlink.net

City of Santa Fe Conservation Office

* Laurie Trevizo, Water Conservation Manager 505-955-4223, lltreviso@santafenm.gov

Resources

* Chair, Water Conservation Committee : Peter Ives, City Councilor, District 2, 505-955-6816, pnives@santafenm.gov
* Savewatersantafe.com
* Water Conservation Office 505-955-4225
* Water Waste Hotline 505-955-4222
* City Parks 505-955-2100
* NM Drought conditions http://droughtmonitor.unl.edu
* NM Governor's Drought Task Force www.nmdrought.state.nm.us/links.html

WG #4
Promoting Conservation Strategies of Large Water Users

Task Report (October 8, 2013)

1. Residential (primarily single-family residential)

    - Efforts continue to promote the installation of electronic transmitting water meters

2. Lodging

    - Efforts continue to get an update on the status on the Green Lodging Initiative

3. Parks

    - Looking forward to having a representative of POSAC attend a WCC meeting

    - On September 18th, Melissa presented DRAFT recommendation to POSAC asking them how they would like to proceed. Melissa suggested that they form a working group to work with our working group on these initiatives.

    - Anticipating receiving park water usage numbers. Looking forward to compiling the numbers and relating them to park locations.

2014 SANTA FE WATER CONSERVATION COMMITTEE MEETING SCHEDULE

DATE	LOCATION	TIME
JANUARY 14, 2014	City Councilors' Conference Room	4-6 PM
FEBRUARY 11, 2014	City Councilors' Conference Room	4-6 PM
MARCH 11, 2014	City Councilors' Conference Room	4-6 PM
APRIL 8, 2014	City Councilors' Conference Room	4-6 PM
MAY 13, 2014	City Councilors' Conference Room	4-6 PM
JUNE 10, 2014	City Councilors' Conference Room	4-6 PM
JULY 8, 2014	City Councilors' Conference Room	4-6 PM
AUGUST 12, 2014	City Councilors' Conference Room	4-6 PM
SEPTEMBER 9, 2014	City Councilors' Conference Room	4-6 PM
[1]OCTOBER 7, 2014 10/13/14 Columbus Day	City Councilors' Conference Room	4-6 PM
[1]NOVEMBER 4, 2014 11/11/13 Veteran's Day	City Councilors' Conference Room	4-6 PM
DECEMBER 9, 2014	City Councilors' Conference Room	4-6 PM

City Councilors' Conference Room – 200 Lincoln Avenue
[1]First Tuesday meeting due to Holiday

January 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1				1	2	3	4
2	5	6	7	8	9	10	11
3	12	13	14	15	16	17	18
4	19	20	21	22	23	24	25
5	26	27	28	29	30	31	

February 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
5							1
6	2	3	4	5	6	7	8
7	9	10	11	12	13	14	15
8	16	17	18	19	20	21	22
9	23	24	25	26	27	28	

March 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
9							1
10	2	3	4	5	6	7	8
11	9	10	11	12	13	14	15
12	16	17	18	19	20	21	22
13	23	24	25	26	27	28	29
14	30	31					

April 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
14			1	2	3	4	5
15	6	7	8	9	10	11	12
16	13	14	15	16	17	18	19
17	20	21	22	23	24	25	26
18	27	28	29	30			

May 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
18					1	2	3
19	4	5	6	7	8	9	10
20	11	12	13	14	15	16	17
21	18	19	20	21	22	23	24
22	25	26	27	28	29	30	31

June 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
23	1	2	3	4	5	6	7
24	8	9	10	11	12	13	14
25	15	16	17	18	19	20	21
26	22	23	24	25	26	27	28
27	29	30					

July 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
27			1	2	3	4	5
28	6	7	8	9	10	11	12
29	13	14	15	16	17	18	19
30	20	21	22	23	24	25	26
31	27	28	29	30	31		

August 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
31						1	2
32	3	4	5	6	7	8	9
33	10	11	12	13	14	15	16
34	17	18	19	20	21	22	23
35	24	25	26	27	28	29	30
36	31						

September 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
36		1	2	3	4	5	6
37	7	8	9	10	11	12	13
38	14	15	16	17	18	19	20
39	21	22	23	24	25	26	27
40	28	29	30				

October 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
40				1	2	3	4
41	5	6	7	8	9	10	11
42	12	13	14	15	16	17	18
43	19	20	21	22	23	24	25
44	26	27	28	29	30	31	

November 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
44							1
45	2	3	4	5	6	7	8
46	9	10	11	12	13	14	15
47	16	17	18	19	20	21	22
48	23	24	25	26	27	28	29
49	30						

December 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
49		1	2	3	4	5	6
50	7	8	9	10	11	12	13
51	14	15	16	17	18	19	20
52	21	22	23	24	25	26	27
1	28	29	30	31			

1 Jan	New Year's Day
20 Jan	Martin Luther King Day
12 Feb	Lincoln's Birthday
14 Feb	Valentine's Day
17 Feb	Presidents Day
4 Mar	Mardi Gras Carnival
9 Mar	Daylight Saving (Start)
17 Mar	St. Patrick's Day
1 Apr	April Fool's Day
18 Apr	Good Friday
20 Apr	Easter
21 Apr	Easter Monday
5 May	Cinco de Mayo
11 May	Mother's Day
17 May	Armed Forces Day
26 May	Memorial Day
8 Jun	Pentecost
9 Jun	Pentecost Monday
14 Jun	Flag Day
15 Jun	Father's Day
4 Jul	Independence Day
1 Sep	Labor Day
11 Sep	September 11th
17 Sep	Citizenship Day
26 Sep	Native American Day
13 Oct	Columbus Day
16 Oct	Boss's Day
18 Oct	Sweetest Day
31 Oct	Halloween
2 Nov	Daylight Saving (End)
11 Nov	Veterans' Day
27 Nov	Thanksgiving
7 Dec	Pearl Harbor
25 Dec	Christmas Day
31 Dec	New Year's Eve

Calendar & Holidays

2014

Calendar-365.com

State Rainwater Harvesting Statues, Programs and Legislation

Record droughts and water-supply worries have served as catalysts for state legislatures to consider legislation legalizing the catchment and use of rainwater for use in households and for lawns.

There has been increased interest over the past five years in legislation allowing, defining, and clarifying when rainwater harvesting can occur. Rainwater harvesting is the act of utilizing a collection system to use rainwater for outdoor uses, plumbing, and, in some cases, consumption. States have also passed legislation encouraging the use of Graywater. Graywater refers to the reuse of water drained from baths, showers, washing machines, and sinks (household wastewater excluding toilet wastes) for irrigation and other water conservation applications.

States must ensure water-quality standards and public health concerns are met. In some states, such as Colorado, previous water law stated that all precipitation belonged to existing water-rights owners, and that rain needed to flow to join its rightful water drainage. However, a 2007 study conducted by the Colorado Water Conservation Board and Douglas County determined that only 3 percent of rain actually reached a stream or the ground. Colorado followed-up by enacting two pieces of legislation, one allowing certain types of well owners to use rainwater and one authorizing pilot development projects.

Texas and Ohio are among states that have devoted a considerable amount of attention to this issue, and have numerous enacted laws regulating the practice of rainwater harvesting. Texas offers a sales tax exemption on the purchase of rainwater harvesting equipment. Both Texas and Ohio allow the practice even for potable purposes. Oklahoma passed the Water for 2060 Act in 2012, to promote pilot projects for rainwater and graywater use among other water saving techniques.

For updates on pending legislation and past years, please see the NCSL Energy and Environment Legislation Tracking Database

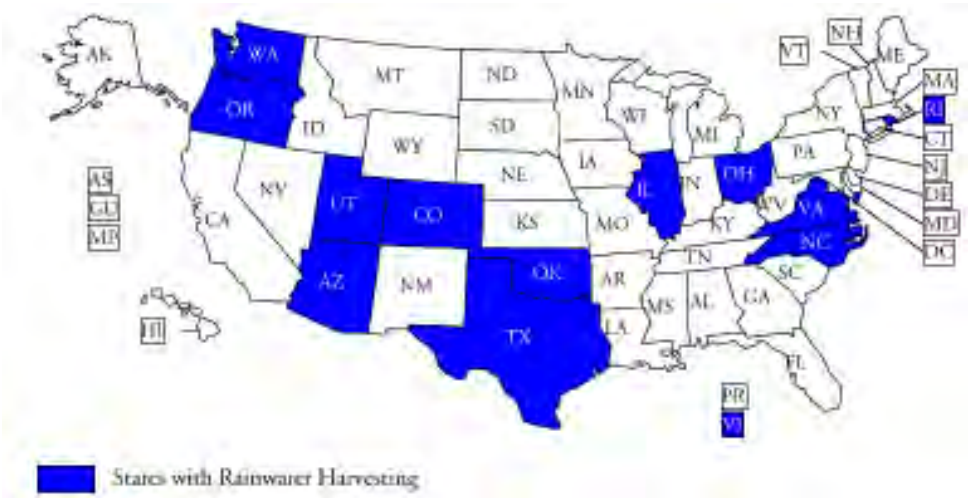
Featured Items

- NCSL Energy and Environment Legislation Tracking Database
- Map of Rainwater Harvesting Laws
- State Rainwater Harvesting and Graywater Laws and Programs
- 2012 Notable Rainwater Harvesting Legislation

NCSL Staff Contact

Douglas Shinkle

Map of Rainwater Harvesting Laws



State Rainwater Harvesting and Graywater Laws and Programs

Arizona | Colorado | Illinois | North Carolina | Ohio | Oklahoma | Oregon | Rhode Island | Texas | Utah | Virginia | Washington | U.S. Virgin Islands

Arizona

Arizona had a tax credit for water conservation systems that included collection of rainwater; however, the credit expired on Jan. 1, 2012. The credit is equal to 25 percent of the cost of the system. The maximum credit in a taxable year could not exceed $1,000. From 2007 to 2010, over $360,000 was credited to homeowners that purchased a water conservation system. Arizona Revised Statutes §43-1090.01

AZ H 2363 (2012) – Established a joint legislative study committee on macro-harvested water. The committee shall study, analyze and evaluate issues arising from the collection and recovery of macro-harvested water, including reviewing scientific data on surface water, rainwater harvesting, methodology costs and benefits, potential impacts on water rights, downstream users, and potential aquifer management issues and groundwater management issues.
AZ H 2830 – This bill allows the governing body of a city or town to establish an energy and water savings account that consists of a designated pool of capital

investment monies to fund energy or water savings projects in public facilities, including rainwater harvesting systems. (Arizona Revised Statutes §9-499.16)

Colorado
Colorado had some of the nation's strictest rainwater harvest laws, essentially prohibiting the practice. In 2009, two laws were passed that loosened restrictions.
CO SB 80 allowed residential property owners who rely on certain types of wells to collect and use rainwater. *Colorado Revised Statutes §37-90-105*
CO HB 1129 authorized 10 pilot projects where captured precipitation was used in new real estate developments for non-potable uses. *Colorado Revised Statutes §37-60-115*
Resources:

- Colorado Division of Water Resources outlined information on SB 80
- Colorado Legislative Council Issue Brief on SB 80 and HB 1129 and Rainwater Harvesting in Colorado
- Criteria and guidelines for pilot projects

Illinois
In 2009, Illinois created the Green Infrastructure for Clean Water Act which relates to water conservation, efficiency, infrastructure and management while promoting rainwater harvesting. Illinois Revised Statutes Chapter 415 §56

IL H 991 of 2011 amended the Homeowners' Solar Rights Act. It requires that within 120 days after a homeowners' association, common interest community association, or condominium unit owners' association receives a request for a policy statement or an application from an association member, the association shall adopt an energy policy statement regarding: (i) the location, design, and architectural requirements of solar energy systems; and (ii) whether a wind energy collection, rain water collection, or composting system is allowed, and, if so, the location, design, and architectural requirements of those systems. Illinois Revised Statutes Chapter 765 § 165/20

North Carolina
NC H 609 of 2011 directed the Department of Environment and Natural Resources to provide statewide outreach and technical assistance regarding water efficiency, which shall include the development of best management practices for community water efficiency and conservation. This shall include employing water reuse practices that include harvesting rainwater and using grey water. North Carolina General Statutes § Session Law 143-355

Ohio
Ohio allows rainwater harvesting, even for potable purposes. Private water systems that provide drinking water to fewer than 25 people are regulated by the Ohio Department of Health (ODH). Ohio also has a Private Water Systems Advisory Council within the ODH. The nine member council is appointed by the governor with the advice and consent of the Senate. Ohio Revised Code §3701.344 and Ohio Revised Code §3701.346

Oklahoma
OK HB 3055 of 2012 created the "Water for 2060 Act." The bill initiates grants for pilot programs. The pilot projects shall be innovative programs that will serve as models for other communities in the state. Pilot projects may include, but are not limited to, community conservation demonstration projects, water use accounting programs, retrofit projects, school education projects, Xeriscape demonstration gardens, projects which promote efficiency, recycling and reuse of water, and information campaigns on capturing and using harvested rainwater and gray water.

Oregon
Since Oregon allows for alternate methods of construction of rainwater harvesting systems, the Oregon Building Codes Division (BCD) created methods for both potable and non-potable systems. Oregon Revised Statute §455.060

Senate Bill 79, passed in 2009, directs the BCD to increase energy efficiency, by including rainwater harvesting, in new and repaired buildings.

Resources:

- Potable Alternate Method
- Non-Potable Alternate Method
- Oregon Smart Guide - Rainwater Harvesting

Rhode Island
RI HB 7070 of 2012 created a tax credit for the installation of cisterns to collect rainwater. Any individual or business that installs a cistern on their property to collect rainwater for use in their home or business shall be entitled to a state income tax credit of ten percent (10%) of the cost of installing the cistern not to exceed one thousand dollars ($1,000). Each entity shall be allowed only one tax credit over the life of the cistern unless they are replacing an existing cistern with a larger cistern and have not received the maximum tax credit of one thousand dollars ($1,000). A cistern is defined as a container holding fifty (50) or more gallons of diverted rainwater or snow melt, either above or below ground.

Texas
Texas HB 3391 of 2011 is one of the most far-reaching and comprehensive pieces of legislation regarding rainwater harvesting in recent years. Among its provisions:

- Allows financial institutions to consider making loans for developments that will use harvested rainwater as the sole source of water supply.
- Requires rainwater harvesting system technology for potable and nonpotable indoor use and landscape watering be incorporated into the design and construction of each new state building with a roof measuring at least 50,000 square feet that is located in an area of the state in which the average annual rainfall is at least 20 inches.
- Requires the development of rules regarding the installation and maintenance of rainwater harvesting systems that are used for indoor potable purposes and connected to a public water supply system, prior to this bill it could only be used for nonpotable purposes. The rules must include criteria to ensure that safe drinking water standards are met and the water does not come in contact with the public water supply at a location off of the property.
- Requires a person who intends to connect a rainwater harvesting system to a public water supply system for potable purposes to give written notice to the municipality or the owner or operator of the public water supply system. A municipality or public water supply system may not be held liable for any adverse health effects allegedly caused by the consumption of water collected by a rainwater harvesting system that is connected to a public water supply system and is used for potable purposes if the municipality or the public water supply system is in compliance with the sanitary standards for drinking water.
- Encourages each municipality and county to promote rainwater harvesting at residential, commercial, and industrial facilities through incentives such as the provision at a discount of rain barrels or rebates for water storage facilities. Requires the Texas Water Development Board (TWDB) to ensure that training on rainwater harvesting is available for the members of the permitting staffs of municipalities and counties at least quarterly. School districts are strongly encouraged to implement rainwater harvesting systems.

- Prohibits a municipality or county from denying a building permit solely because the facility will implement rainwater harvesting.

Other Texas Statutes

Texas Health and Safety Code §341.042 outlines standards for harvested rainwater. Includes health and safety standards for treatment and collection methods for harvested rainwater intended for drinking, cooking, or bathing.

Texas Property Code §202.007 prevents homeowners associations from banning outdoor water-conserving measures, including rainwater harvesting installations. The legislation allows homeowners associations to require screening or shielding to obscure view of the tanks.

Texas Tax Code §151.355 allows for a state sales tax exemption on the purchase of rainwater harvesting equipment.

Resources:
The Texas Manual on Rainwater Harvesting provides information on the practice and outlines sales tax exemptions at the state and local level (pg. 53).
In 2005, the legislature ordered the creation of a Texas Rainwater Harvesting Evaluation Committee; see here for its 2006 Report to Texas Legislature with Recommendations.
The Texas Water Development Board sponsors the Texas Rain Catcher Award to advance the technology, educate the public, and to recognize excellence in the application of rainwater harvesting systems in the state.

Utah

Utah allows for the direct capture and storage of rainwater on land owned or leased by the person responsible for the collection. If a person collects or stores precipitation in an underground storage container, only one container with a maximum capacity of no more than 2,500 gallons may be used. For a covered storage container, no more than two containers may be used, and the maximum storage capacity of any one container shall not be greater than 100 gallons. Utah Code Annotated §73-3-1.5

Virginia

In 2001, Virginia passed Senate Bill 1416, which gave income tax credit to individuals and corporations that installed rainwater harvesting systems. "There is hereby established the Alternative Water Supply Assistance Fund to be administered by the Department to provide grants to localities to be used for entering into agreements with businesses and individuals to harvest and collect rainwater for such uses as determined necessary by the locality, including, but not limited to, irrigation and conservation." However money has not been allocated for these purposes.

Va. Code Ann. § 32.1-248.2 – Requires the development of rainwater harvesting and graywater guidelines to ease demands on public treatment works and water supply systems and promote conservation.
Resources:
Virginia Rainwater Harvesting and Use Guidelines

Washington

In Washington, state law allows counties to reduce rates for storm water control facilities that utilize rainwater harvesting. Rates may be reduced by a minimum of ten percent for any new or remodeled commercial building. However, the rate can be reduced more than ten percent, depending on the county. Kitsap County's Ordinance reduces surface and stormwater fees by 50 percent. Washington Revised Code §36.89.080

Uses for harvested rainwater may include water closets, urinals, hose bibbs, industrial applications, and for irrigation purposes. Other uses may be allowed when first approved by the authority having jurisdiction. Washington Revised Code §51-56-1623

Resources:
In 2009, the Washington Department of Ecology issued an Interpretive Policy Statement clarifying that a water right is not required for rooftop rainwater harvesting.
Washington Department of Ecology Rainwater Collection website

U.S. Virgin Islands

Since 1964, the U.S. Virgin Islands has required most buildings to be constructed with a self-sustaining potable water system, such as a well or rainwater collection system.
U.S. Virgin Island Code Title 29 §308

2012 Notable Rainwater Harvesting Legislation

State	Bill	Summary
California	CA AB 1750 (Pending: To Senate Committees on Natural Resources and Water and Rules.)	Would enact the Rainwater Capture Act of 2012. Would authorize residential, commercial and governmental landowners to install, maintain, and operate rain barrel systems and rainwater capture systems for specified purposes, provided that the systems comply with specified requirements. Would authorize a landscape contractor working within the classification of his or her license to enter into a prime contract for the construction of a rainwater capture system if the system is used exclusively for landscape irrigation.
	CA AB 2398 (Pending: In Senate Committee on Natural Resources and Water: Held in committee.)	Would enact the Water Recycling Act of 2012. Would establish a statewide goal to recycle specified amounts of water by specified calendar years. Would require the adoption of a drinking water criteria for groundwater recharge project utilizing recycled water and the development and adoption of drinking water criteria for advanced treated purified water for raw water augmentation projects. Establish a related research fund. Relates to permits and permit fees for raw water augmentation projects. Relates to inspections.
Illinois	IL HB 1585 (Pending: Referred to House Committee on Rules.)	Would provide that "plumbing" includes rainwater harvesting distribution systems, but does not include any rainwater harvesting distribution system or rainwater harvesting collection system unless otherwise required by the Illinois Plumbing Code.
Massachusetts	NJ AB 2890 (Pending: To Assembly Committee on Environment and Solid	Water Conserving Plants Purchase Tax Deduction – Would provide for a personal income tax deduction for the purchase of certain water conserving plants and items: WaterWise plants and landscaping items intended to reduce water usage, including, but not limited to: drought resistant plants that last for more

STATE	BILL	SUMMARY
	Waste.)	than one year; kits or devices specifically designed for generating compost; grey-water recovery systems where the effluent is used for watering plants; rainwater recovery and storage devices where they are used for watering plants; rain sensors for irrigation systems; and, underground drip irrigation systems.
New Jersey	NJ AB 2890 (Pending: To Assembly Committee on Environment and Solid Waste.)	Rainwater Capture and Water Conservation - This bill would establish several incentives for installation and operation of a rainwater capture system and prohibiting any fees or taxation related to the purchase, installation and use of these systems.
New York	NY AB 6490 (Pending: Amended in Assembly Committee on Real Property Taxation.)	Would create a tax exemption program for commercial and residential real property owners who purchase or install systems for rainwater harvesting, which a municipality within Westchester or Putnam county could adopt by resolution.
North Carolina	NC HB 282 (Failed: Adjourned.)	Would provide that homeowners associations may not prohibit the installation of certain water and energy efficiency improvements by homeowners. Water efficiency improvement. - Rain gardens, cisterns, rain barrels, and other devices or landscaping installations intended to capture, collect, or store rainwater or to reduce the need for irrigation.
	NC SB 427/ NC HB 787 (Failed: Adjourned.)	Would improve the security of North Carolina's water resources. Employing water reuse practices that include harvesting rainwater and using grey water.
Washington	c WA HB 1025 (Failed: Adjourned.)	The rate a county may charge a school district under this section for storm water control facilities would be reduced by a minimum of ten percent for any new or remodeled commercial building that utilizes a permissive rainwater harvesting system. Rainwater harvesting systems would be properly sized to utilize the available roof surface of the building. The jurisdiction would consider rate reductions in excess of ten percent dependent upon the amount of rainwater harvested.
	WA SB 5447/ WA HB 1746 (Failed: Adjourned.)	Related to utility rates and charges for unoccupied mobile home lots in manufactured housing communities: The rate a city or town may charge under this section for storm or surface water sewer systems or the portion of the rate allocable to the storm or surface water sewer system of combined sanitary sewage and storm or surface water sewer systems shall be reduced by a minimum of ten percent for any new or remodeled commercial building that utilizes a permissive rainwater harvesting system. Rainwater harvesting systems would be properly sized to utilize the available roof surface of the building. The jurisdiction would consider rate reductions in excess of ten percent dependent upon the amount of rainwater harvested.
Wisconsin	WI AB 737 (Failed to Pass.)	This bill would require DSPS to promulgate rules that establish standards for the installation of graywater and rainwater systems and that authorize the use of graywater and rainwater within the building, or on the property surrounding the building, from which the graywater was generated or the rainwater was collected.

Source: National Conference of State Legislatures, 2012

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Water Conservation: Federal, State, And Local Requirements Are Helping To Drive The Use Of Water Efficient Technologies

By Amy Vickers - April 2005 - Green

Governing bodies are imposing rules and regulations on certain types of water use in a growing number of cities and regions. Although many facility executives are familiar with temporary water use restrictions, such as limited hours for lawn and landscape irrigation during drought, facility executives increasingly have to heed permanent water conservation rules.

Why are requirements for water conservation here to stay? In most communities the reason boils down to water demands outstripping supplies. Increasing growth — the U.S. population is projected to exceed 300 million by 2010 — is putting pressure on drinking water supplies. Pollution, such as contamination of ground water, is forcing some drinking water sources to close or require expensive treatment technologies to keep them potable. Alternative sources such as reclaimed wastewater and desalinated seawater are options in some locales. However, they require costly new infrastructure and are not trouble-free. Simply put, to keep water and sewer service available and affordable, everyone needs to get better at doing more with less water.

The good news is that regardless of whether water conservation is required, there is a bevy of ways to save water in commercial and institutional facilities.

Examples Of Water Conservation Ordinances And Rules

Water Efficiency Measure	Description	Est. Water Savings*	Jurisdiction	More Information
Low-volume toilets (≤1.6 gal/flush), urinals (≤1.0 gal.flush), faucets (≤ 2.5 gal/minute @ 80 psi or ≤ 2.2 gpm @ 60 psi), and showerheads (≤ 2.5 gal/minute @ 80 psi or ≤ 2.2 gpm @ 60 psi). Exceptions for certain special uses (i.e., prisons).	Sets maximum flow rates for plumbing fixtures	35 to 70 percent	United States (federal law applies to local, state, and federal level)	Click Here
Non-flushing Urinals	No water used for flushing urinals	1 to 5 gallons per flush	Arizona Oregon	Click Here

Lawn irrigation restrictions (year-round)	Lawn watering limited to two applications per week, before 10 a.m. and after 4 p.m. only. Certain exemptions allowed.	5 to 15 percent	Southwest Florida Water Management District	Click Here Click Here
Turf limits	No more than 25 percent of an area set aside for landscaping can be grass in new non-residential developments. New golf courses are limited to an average of 5 acres per hole, with a maximum 10 additional acres for driving ranges. Rebate of $1 per square-foot of existing turf removed.	More than 50 percent per square foot of lawn replaced by native or adaptive plant material or ground cover	Las Vegas	Click Here Click Here
Pre-rinse kitchen sink spray valves	All models manufactured after January 2006 must be equal to or less than a flow rate of 1.6 gallon/minute	50 gallons per hour of use per valve, about 100 to 300 gallons per day per kitchen	California	Click Here Click Here
*Actual savings will vary depending on pre-conservation water use rates and related factors (e.g., occupancy levels, leakage, climate, etc.).				

Water Conservation Ordinances and Rules

Water conservation policy and program initiatives targeted at the commercial and institutional sector often focus on reducing the amount of water used by plumbing fixtures, cooling systems and irrigation. These types of uses are typically the largest components of water demand at commercial and institutional facilities. What follows is an overview of technologies and practices that can curb water consumption.

Low-Volume Plumbing Fixtures. By now, most facility executives are aware that under the U.S. Energy Policy Act of 1992 (EPAct) only low-volume toilets, urinals, faucets and showerheads can be installed in most facilities. EPAct sets maximum flow rates for fixtures. Since it was enacted, plumbing manufacturers have developed products that exceed EPAct's water efficiency requirements. For example, high-performance dual-flush and 1.0-gallon-per-flush toilets are now available, as are nonflushing urinals and models that use less than 0.5 gallons per flush. Showerheads and lavatory faucets with flow rates of 1.0 to 1.5 gallons per minute are also gaining acceptance as functional designs improve. EPAct was designed to save water through normal fixture replacements. It is estimated that by 2020, the United States, will save between 6 billion and 9 billon gallons of water a day, enough to supply four to six cities the size of New York City.

Urinals That Don't Use Water. What do the Baltimore/Washington International Airport, Walt Disney World and the El Paso, Texas, Independent School District have in common? They all use urinals that use no water for flushing. Waterless urinals look like conventional urinals, but instead of using water for flushing, a liquid, usually oil, or canister trap contain odors in the urinal drain. Two states have laws governing nonflushing urinals. Arizona requires all urinals installed in new state buildings after Jan. 1, 2005, to be waterfree fixtures. Recently, the Oregon State Plumbing Board approved a rule to promote the installation of waterless urinals by allowing them in city, county, state and federal government facilities. Several cities and water systems offer rebate incentives for urinals that don't use water, including Austin, Texas, and Seattle.

Recirculated Cooling Systems. Several water suppliers and cities require efficient water cooling practices and equipment. Denver Water requires all water used for evaporative or refrigerated cooling and air conditioning, including equipment such as condensers, and processes, to be recycled or reused. New York City requires recirculated water for medium and large refrigeration and air-cooled systems; properties with steam-source refrigeration must use some condensate for cooling tower makeup water.

Landscape Water Use. Lawn watering is restricted year-round in the cities and towns served by the Southwest Florida Water Management District. Irrigation applications to lawns are limited to twice a week, and only before 10 a.m. and after 4 p.m. Certain exemptions are allowed, but this is one of the more aggressive lawn watering rules that is not directly related to drought. Most lawn and turf areas, including playing fields, can survive and thrive on a

reduced watering schedule if irrigations are ramped down carefully. Landscape and lawn health may actually improve under a more water-thrifty irrigation regime; excessive watering is a common culprit of root rot, plant diseases and bug infestations. In addition to water savings with reduced irrigation schedules, chemical — fertilizer, pesticide and herbicide — as well as labor costs may be reduced.

Turf Limitations. Las Vegas is cracking down on excessive lawn watering by applying turf limits to new properties, including commercial sites and golf courses. Existing multifamily and business property owners that convert grassy areas to water-thrifty native or adaptive plant materials or to waterfree ground covers can earn $1 per square foot in the Water Smart Landscape Rebate program offered by the Southern Nevada Water Authority.

Pre-rinse Spray Valves. Nearly 20,000 water-saving, pre-rinse spray valves have been installed in California restaurants and food service facilities as part of a commercial water conservation program. Wisconsin's Focus on Energy and the San Antonio Water System have similar programs. The 1.6-gallon-per-minute hand-held spray devices are similar to the 3- to 5-gallon-per-minute conventional spray heads used to remove food residue from dishes, flatware and other food-service items prior to cleaning in a commercial automatic dishwasher. A study of water-thrifty pre-rinse spray valves found that the valves saved about $300 per year in reduced water and energy costs. The payback on the valves was less than three months.

Amy Vickers, an engineer and water conservation specialist with Amy Vickers & Associates, Inc. in Amherst, Mass., is author of Handbook of Water Use and Conservation: Homes, Landscapes, Businesses, Industries, Farms *(WaterPlow Press).*

Nonflushing Vs. Low-volume Urinals

Considerable discussion, and some grumbling, has occurred in recent years over the performance of urinals that don't use water. While the numbers of nonflushing urinal installations and enthusiastic customers are growing — along with manufacturers who offer products — some facility executives have complained about increased odor, clogging, and failing or short-lived and expensive trap seal products that create unpleasant cleanup tasks for maintenance workers.

Aside from splash-back problems with some early models that have been corrected, surveys of users of nonflushing urinals show users are generally pleased with the new fixtures. However, facilities that don't have reliable drain-line pitch and maintenance workers who are reluctant to clean nonflushing urinals — hard water increases mineral build-up that can require more aggressive bowl cleaning — may avoid these problems by installing wash-down urinals that use only 0.5 gallon per flush or less.

Like most new technologies, the performance of nonflushing urinals will likely improve over time. For the right situation, the urinals will function just fine, save tons of water, and reduce water and sewer bills.