PRESCOTT CITY COUNCIL
WORKSHOP
TUESDAY, JULY 27, 2010
PRESCOTT, ARIZONA

MINUTES OF THE WORKSHOP OF THE PRESCOTT CITY COUNCIL held on TUESDAY, JULY 27, 2010 in the COUNCIL CHAMBERS located at CITY HALL, 201 SOUTH CORTEZ STREET, Prescott, Arizona.

◆ **CALL TO ORDER**

Mayor Kuykendall called the workshop to order at 2:02 p.m.

◆ **ROLL CALL**:

Present:	Absent:
Mayor Kuykendall	None
Councilman Blair	
Councilman Hanna	
Councilman Lamerson	
Councilwoman Linn	
Councilwoman Lopas	
Councilwoman Suttles	

1. Presentation by Civiltec re Macro-Rainwater Harvesting/Evaporation Interception (M-RH/EI).

Mr. McConnell introduced Rick Shroad President of Civiltec. Doug McMillan was also present. They began by presenting a PowerPoint presentation, attached hereto and made a part hereof by this reference, which addressed the following items.

Mr. Shroad said that the concept of M-RH/EI came to fruition a couple of years ago. They had been working on this for a few years to figure out the ups/downs, and goods and bads of it. They have presented it to a number of entities such as the Arizona Department of Water Resources (ADWR), Salt River Project (SRP), environmental, political and service groups. They are going to have a two phase presentation – (1) background and (2) what they are doing with the background information.

Mr. McMillan noted that there were real problems with the ground water. He showed hydrographs which were a groundwater table vs. time. The tables in the Prescott AMA were going down 2 ½ feet per year and some were over 10 feet per year. He then discussed various locations and noted that all were ADWR wells except one.

- PRESCOTT AMA WATER BUDGET

- EVAPORATION

- PRESCOTT AMA WATER BUDGET WITH MRH / EL

Macro rainwater harvesting is taking water that would have been lost to evaporation and recharging it into the aquifer.

- EFFECT OF USING SOUTH BAY ADQUEDUCT FOR GROUNDWATER RECHARGE IN SAN JOSE, CA

- PRESCOTT AMA PRECIPITATION

- EVAPOTRANSIRATION IN PRESCOTT

- AVERAGE ANNUAL EVAPORATION IN THE US

- ANNUAL AVERAGE RUNOFF IN THE US

- GRANITE CREEK AND LONESOME VALLEY

- ADWR FIGURE SHOWING THICKNESS OF THE COMBINED LOWER VOLCANIC AND UPPER ALLUVIAL UNIT IN THE PRESCOTT AMA

- HYDRAULIC CONDUCTIVITY VALUES IN UPPER ALLUVIAL UNIT

- LATERNAL CROSS SECITON OF THE LITTLE CHINO AQUIFER BASIN

- PROPOSED TOOL FOR PRESCOTT AMA GROUNDWATER DEFICIT PROBLEM

Mr. Shroad noted that the goal to reach Safe Yield could happen through conservation, aquifer recharge and alternate water resources.

MRH/EI consists of harvesting water on a large scale basis (not roof water, but a major system), and transporting that water to areas that are good for recharge. Just harvesting and putting in the ground does not always work.

The water that he was talking about intercepting would have been lost to evaporation anyway. Under rare circumstances they get outflows to the Verde River. This year Granite Creek outflowed to the Verde. Most of the time ADWR gives them zero credits for a long term average for surface runoff water. He was talking about decreasing the amount of water being lost due to evaporation.

- SURFACE DRAINAGE COLLECTION IN UNDEVELOPED AREAS

- SUBSURFACE INFILTRATION COLLECTION USING PERFORATED PIPES FOLLOWING NATURAL DRAINAGE SWALES IN UNDEVELOPED AREAS

- SURFACE AND/OR SUB-SURFACE INFILTRATION COLLECTION BY REGARDING TOPOGRAPHY, COMPACTING SOILS AND APPLYUING SOIL REPELLENTS IN UNDEVELOPED AREAS.

- SUB-SURFACE INFILTRATION COLLECTION USING PERFORATED PIPES ALONG ROADSIDE DITCHES AND IN DEVELOPED AREAS

- PILOT SITE LOCATIONS

- VIEWPOINT PILOT SITE AND LAYOUT

- PRONGHORN PILOT SITE AND LAYOUT

- OLD HOME MANOR PILOT SITE AND LAYOUT

- RAIN WATER HARVESTING AND GROUNDWATER RECHARGE METHODS USED IN THE U.S. AND OTHER COUNTRIES

- DESIGN OF “ROADED CATCHMENTS” IN WESTERN AUSTRALIA

- USING SAND DITCHES IN JORDAN

- ARTIFICIAL GROUNDWATER RECHARGE IN JORDAN

- WADIS IN SAUDI ARABIA

- MICROCATCHMENTS IN ISRAEL

- MOUNTAIN FRONT RECHARGE IN OGDEN, UT

- QUESTIONS

Councilman Hannaasked if anyone had done a study during monsoon season to see what would happen if all of the water was captured, rather that letting it evaporate. Mr. Shroad said that he did not know if it had been studied on a microscopic scale. Prescott’s groundwater supplies have dropped over the years. So far they have been contributing to others getting more water from evaporation.

Councilman Lamerson asked how SRP responded to the opportunity to areas like the Prescott Active Management Area being able to retain some of the water that would run off and evaporate in some of the basins.

Mr. Shroad said that when they presented to SRP, it was a more technical version. They were able to focus on the fact that the water hitting the ground here does not runoff and go into the Verde River, in general. It collects in areas that get saturated and they lose it to evaporation. If they could take that water and direct it to the aquifer and stop the declining water table, they felt it would enhance their sub flow interests and possibly be a better situation.

Councilman Lamerson noted that presentations like this open minds to other opportunities to try to reach a goal that everyone wants to obtain. It also points out there may be other ways of doing it, and opens the door to invite the State and have them involved in the overdraft with the issuance of exempt wells to participate in a way to resolve the problem.

Councilwoman Linn asked what their timeline was and when they were going to do the Pronghorn site. Mr. Shroad answered that all of the plans that she saw for the pilot projects were finished. They have been engineered and are ready for construction. It depends on when the funds become available. In the meantime they were trying to get the word out and listen for feedback. This is a new, out of the box concept.

Mayor Kuykendall asked if Granite Creek was one of the better recharge areas. Mr. Shroad said that Granite Creek and Mint Wash are good because of the sand and gravel. It would be great to embrace development around Granite Creek.

Mayor Kukendall asked if as growth and development occur to the north around 89A, the opportunities for recharge through experimental plants would be good. Mr. Shroad said that if the idea would be to experiment with a subdivision, they would be good. On the other hand, they should look at the dangers of paving over certain areas of Granite Creek, the areas that are pervious. They want to save those areas.

Mr. Shroad continued that when water is released into Granite Creek from the lakes, it was a very effective method of recharge. In the real world they do not get to do it as much as they wish. The majority of water that drops on the basin is lost to evaporation. Mr. McMillan said that what the City is doing at the airport is called off-line recharge.

Mr. Kuykendall asked if the work that they were doing with APS at the solar farm would be putting water back in the same recharge area.

Mr. Shroad said that in general in would be west of Granite Creek. The water falls on the glass solar panels has 100% runoff. It falls on the ground onto a clay layer. It saturates the clay and then evaporates.

Mr. McMillan noted that the advantage of that area is that there could be two uses for that land – solar power and water collection.

Mayor Kuykendall asked them to relate that to the Big Chino area. If there are solar potentials out there, he asked if the same thing would apply.

Mr. Shroad referred back to the slide that said harvest, transport and recharge. He said that there were some heavy clays in that area and along the Big Chino.

Gary Worob, Prescott, said that the 2050 committee recommended that they capture rain water. He asked them to talk about the area south of the lakes in Granite Creek.

Mr. McMillan said that each area had to be looked at in a different light. The area south of the lakes, from the United States Geologic Maps, is rock. The wells are pulling small amounts of waters out of crack fissures. Generally, it was not good for recharge. Best thing to do was capture the water and get it down to Watson and Willow Lakes so the will fill up sooner and then Granite Creek can flow sooner and begin to recharge in the basin.

Mayor Kuykendall asked if first catchment would be the lakes. Mr. McMillan said that the lakes are not very good for recharge as their sediments build up. Everyone he talks with said that recharge is not occurring there. There was 2500 acre feet of water evaporate from those lakes. They are detrimental to the project. From a water resource perspective they don't do any good.

2. Adjournment.

There being no further business to be discussed, the Workshop of the Prescott City Council held July 27, 2010, adjourned at 2:48 p.m.

_____
MARLIN D. KUYKENDALL, Mayor

ATTEST:

_____
ELIZABETH A. BURKE, City Clerk