

the zones shows us where we might have high users in the future depending on how those zones build out. What they're doing with today's use and the future use is they're trying to calibrate the hydraulic model with our computerized water system so it accurately represents what our current conditions are and then as we plan for the future we can also use these maps and data to understand for example that there's a lot of use that going to be targeted there as the zoning increases over time. We will want to build our system so that as we're doing projects we build the infrastructure with that in mind so that in the future it will save us money.

Joe Phillips said that from that meter data and the zoning map, this is what the numbers look like. We can see how the different zones in our recreational areas and open land use water by acre-feet per year in 2013, 2014 and 2015. He said that the numbers are pretty consistent. From this same data we can see what our water system uses on a monthly basis and also annually. This is pretty typical of what we see in a water system. Often the highest use months are July and August. In our case September is also high. By the end of the year our system consumes about 2300 acre-feet of water on an annual basis.

Sunrise has a lot of the background information on the water and its use. As they begin to get the model built and prepare to print map books for us, they needed to do a reconciliation of our GIS vs. our Autocad water systems just to make sure that the model they operate and the maps books that they give us at the end of the project match. They started with the GIS layers they were provided by the District and then they brought the CAD layers into those and then they went thru and check for discrepancies. They found quite a few. They met with Joe and Lon a month ago and worked thru a lot of those questions. He thinks they got most of them solved and they've been transferred into the model.

Joe Phillips had a map that Joe Davis was referencing which shows what our water sources look like. The yellow dots are our water rights and they're located according to the quarter section that the actual water rights are in. The red dots are our wells or head houses so they're our actual sources. They also showed the basins where our water rights are located. They labeled the water rights with the application #, the owner, the application status, the annual duty and in some cases it has the combined duty. It gives us an idea of where our sources are coming from. Most of our water rights are up in Warm Springs and most of our demand is in the lower valley. The map also shows the wildlife water rights we've filed on. We have a really good water resource plan that was done a couple of years ago so Sunrise is not going to go into a lot of detail on water rights. They're going to reference a lot our water resource plan that has already been adopted by the Board.

The data we gave them shows that we have 2,623 actual water connections. ERU means "Equivalent Residential Unit". They interpret that to mean a single family home. In our case it's a R1 zone which means a single home on a 1/5 or a 1/4 acre lot according to Clark County Zoning. In that zoning there are 246 connections. They all use an average .508 acre feet per year. That's about right for that kind of area.

There have been a number of discussions on how to project the growth. Sunrise showed the historical growth rate at 3.6%. The State Demographers office says it will be .70%. The growth chart that Sunrise used is from the water resource plan and they match up fairly well. At the time the plan was done the State Demographers office showed .75% growth rate. Joe Phillips said that they will use for the purpose of this planning study the .70% growth rate. They thought in the long run at least for the next 5 years that would be more conservative and help us more accurately establish what kind of rates based on our water rights. The reason they felt like that is because in discussion with staff about the current economic climate and the climate development in the valley right now, there doesn't seem to be a lot of growth happening. They decided to reflect that for now and make sure that we set our rates so that they're steady so the lower growth rates can fund our system. In the event that we do see some growth then we can update the plan and show a higher growth rate and change the projects that are in the plan. Growth is important because it drives the rate at which the demand is put on this system.

Joe Phillips had a chart which showed water demand projections. Earlier he had showed a chart which showed our accumulative water use and he said that it's at 2400- 2500 acre – feet a year. With the .70% growth they anticipate the demand for water rights to continue to grow at least for the next four years. The amount of municipal rights that we have right now and then we have other irrigation rights that are added to that which brings our total water rights to 13,500. Right now we have 11,000 of extra water rights right now that aren't being put to beneficial use. As our population grows the surplus rights will come down.

Joe Phillips then talked about source capacity. Source capacity refers to the ability we have to extract our water rights from the ground or from the surface and put them into use. We have great source capacity right now. He had a chart showing our existing sources for a total ability to move 7300 gpm. Right now

based on the population that we have and the demand on the system, we really only need to move about 3000 gpm so there's a lot of redundancy that's available to us so he doesn't foresee them recommending as part of this plan any source development unless we see something the data's not showing.

Storage capacity was on the next slide. This was something he needs to work on. Based on just straight required storage capacity, existing use and NV Administrative Code, we have plenty. All we need is 2.5M gallons but that doesn't include redundancy for emergency storage but does include fire flow. He doesn't anticipate us needing more storage. They will show this item higher in case we have an emergency. Another thing that we could see for example is some communities will have plenty of storage based on numbers but they'll have difficulty in some areas providing fire flow. In some cases it's cheaper to build an additional tank even though they have plenty of storage by the numbers then it is to run additional lines.

Joe Phillips hasn't had a chance to touch treatment capacity but he said that we won't need a microfiltration plant.

As they get further along in the model, one of the things they need to do is model some potential high volume connections that perhaps may come on in the future. Joe Phillips had a map showing some of the places that have been identified as places to model (the big green circles). In most cases they correspond with the GIS mapping of the high use areas like public facilities and industrial areas, they've removed the residential users. They correlate well with some potential sites that might eventually have some high users. When they get into the model they'll put the 1M gallon a day users on the system, run it and see what kind of demand and stresses it puts on the system and make recommendations from there. Some of the places might be in a position where they can serve those high users without a lot of extra infrastructure but they haven't got that far yet.

In terms of progress, they've walked thru a lot of the background work that they've done and tried to get their arms around what it feels like, what it is doing and what kind of resources and assets the District has to serve our customers. They're in the process right now of trying to get the model finalized, calibrated, and corrected up so they can start to make recommendations on solutions in terms of piping and storage and things like that. They still have some fairly significant questions on the model so they will probably need to have a conference call with staff. The lower part of the model is in pretty decent shape but the upper part has some things they still need to figure out. It looked like the model was probably at one time built in three different coordinate systems and they're all blended together. When they bring the model into the GIS System it falls into line with the streets pretty well. In some areas it's often off the street by 40', 50' or a 100'. The reason it's a concern to them is they don't know how good the elevation data is on that model. It's all based on whatever the coordinates were in the system it was in before. They just don't know how accurate it is. They're going to try to correct that but sometime in the future we may want to think about taking that model and really going thru it with a fine toothed comb and getting it to where we have a super high comfort level with it.

Joe Phillips then showed the Directors the first run at the model. It is going to change but he wanted to show it anyway. State code requires that we show the flows with three different scenarios. The first scenario is under maximum day demand so what that map showed was all of the nodes in our water line. A node is a junction in the model that tells us what flow, pressure and what different conditions on going on in the model. Everywhere there was a blue dot there's also a node in the model that meets the minimum requirements by the NV Administrative Code. All of the blue nodes meet the minimum 45 psi requirement. He showed them the places that have problems. It corresponds with the area that we don't have a great level of comfort on. If for example, the elevations on the model are 20' higher than actual, a lot of those red dots might go away. They are going to work on this area of the model.

The next slide was the peak hour demand chart. The peak hour is for an example when you look at use on a water system, the highest hours are in the morning before school and work start and then in the afternoon and evening after school and work. The code allows you to lose 10 lbs psi in pressure in those nodes. Our system still runs really good in the first blow through.

The next chart was the maximum day fire demand. This was a little bit different. The blue and red circles show the actual location of our fire hydrants. The ones that are grayed out are other nodes in the model that aren't hydrants; they just represent meter clusters. They checked the maximum use day and look at the demand there and then also added the 1500 gpm fire demand. As they go thru the model and get a higher level of comfort with how it's working, they'll get in the model and start putting some lines in it on how they think we can get the biggest bang for our buck to try to solve the most problems. Bear in mind that 1500 gpm we'll see anywhere from a 1000 gpm to 1500 gpm and sometimes higher than that. If they

were to reduce the fire flow to 1400 gpm as the standard, some of these nodes would drop off just below the 1500 gpm standard. Joe Phillips asked Joe if he wanted to do that. Joe said no. Joe Phillips suggested leaving it right there and try to find some way to solve the issues.

The last slide was just the schedule. They're a just a little behind schedule. They're just starting on "Identify and Model Proposed Projects" because the "Upload, Repair, Calibrate, & Operate Water Model" has been a bit more of a challenge then they thought it would be. They're about a week behind schedule.

During the presentation there were quite a few questions from the Directors which Joe Phillips answered.

3. Approve the Purchase from De Nora Water Technologies Texas, LLC in the amount not to exceed \$99,800 for a ClorTec Onsite Sodium Hypochlorite Generation System (For Possible Action)

Joe Davis explained that before we went out for bid for this, we solicited some prices from existing distributors that were going to bid on this. That's how Staff decided what they were going to budget this for. After we went thru the engineering process, there were some recommendations that we received that caused us to add some things to our request for bids. When we got the bids they were higher the anticipated. We had budgeted \$100,000 but the bid came in at \$99,800. We solicited bids from three contractors. We received two. OSEC said that they were going to submit a bid but they didn't. Joe had Bowen Collins go thru the bids we did receive. This generator will be installed at Arrow Canyon and the one that's at Arrow Canyon right now will be installed at Baldwin Springs. It will run as a secondary unit. If one of the generators goes down, this will allow us to swap parts. The generators will be installed by staff. The De Nora system is the same system we have right now so staff is very familiar with it. Joe recommended accepting the bid from De Nora.

On motion of Randy Tobler and seconded by Ryan Wheeler, the Board voted 4-0 in favor to accept the bid from De Nora Water Technologies in the amount not to exceed \$99,800 for a ClorTec On-Site Sodium Hypochlorite Generation System.

4. Public Comment (May be limited to five minutes)

None

5. Director's Preference

- Litigation (Closed – Door Session)
- Water Rights Discussion (Closed – Door Session)

On motion of Chairman Staton and seconded by Lindsey Dalley the Board voted 4-0 to call a closed-door session at 4:25 p.m.

On motion of Chairman Staton and seconded by Ryan Wheeler the Board voted 4-0 to reconvene the open-door session at 4:48 p.m.

6. Personnel (Closed – Door Session)

- Employee Christmas Bonus (For Possible Action)

On motion of Chairman Staton and seconded by Randy Tobler, the Board voted 4-0 in favor to give every employee a \$400 Christmas bonus.

7. Approval of the January 12, 2017 Board Meeting

The general consensus is to hold the January Board meeting on January 12, 2017 at 4 p.m.

8. Public Comment (May be limited to five minutes)

None

9. Adjournment

The meeting adjourned at 4:55 p.m.