

MOAB CITY PLANNING COMMISSION MINUTES
January 28, 2021

The Moab Planning Commission held its regular meeting on January 28, 2021, via a Zoom Meeting. An audio recording of the evening meeting is archived at <https://www.utah.gov/pmn/index.html> and a video recording is archived at <https://www.youtube.com/watch?v=0KZEDenDU9A>

1. Call to Order

The Moab Planning Commission Chair Kya Marienfeld called the meeting to order at 6:02 pm. In attendance were Planning Commission Chair Kya Marienfeld, Planning Commission members; Jessica O’Leary, Luke Wojciechowski, Becky Wells, John Knight, and Ruben Villalpando-Salas. Commission Member Marianne Becnel was absent. Staff in attendance included City Planner Nora Shepard, Assistant Planner Cory Shurtleff, City Engineer Chuck Williams, Assistant City Manager Carly Castle, and City Recorder Sommar Johnson. Additionally, City Council Member Mike Duncan attended the meeting.

2. Citizens to be Heard

There were no citizens present to speak.

City Recorder, Sommar Johnson, stated that there were a couple of Citizens to be Heard forms received. She read the first form, which was received from Travis Nauman, stating, *“I am very concerned about water resources planning moving forward. Recent studies (USGS report, and Gardner et al paper in Journ. of Hydrology) that have gone through extensive peer review indicate that we are already very close to safe yield (within 0-1000 Ac/ft). These also don’t account for projections that our regions have a high probability of extended megadrought in a number of peer reviewed studies. It concerns me that UT Div of Water Rights and other entities seem to think that we have 2000-4000 Ac/ft left before safe yield based on Ken Kolm’s work. The problem is that the Kolm’s work has not gone through peer reviewed and ignores the emerging scientific evidence that a substantial portion of the Glen Canyon Aquifer is a deeper, slower moving body of water. I would urgently advise the commission to push for further vetting of Kolm’s work and to give the other more robustly studies more consideration in future water planning and lobbying of the UT div. of water rights.”*

Johnson continued reading the second form, which was submitted by William “Bill” Love, stating, *“1. We need to know the total amount of water that will be used in the next year or year and a half after all the construction below is completed.*

This is the total of Moab City current water use + use by approved construction + use by proposed college + the 500 acre feet that will be used in San Juan county + the 250 ERUS that SITLA purchased from GWSSA when GWSSA overran their budget on drilling their water wells over 15 years ago+gwssa current use+GC approved construction. We could add the water needed to keep the golf course green and the Arena green next year due to the drought. As of now there is no snow in the La Sals. This will need coordination between the county and city.

2. We also need to know what is the water needed for build out in the City and County under the current Land Use codes.

When we have these numbers we will probably need to find the millions of dollars necessary to tap the Colorado River.

People need to know how many acres of land within the valley cannot be developed and when they can

expect the city to close down all agriculture that uses groundwater for irrigation. Residents have the fantasy that there is water for building out their property and the City and county cannot take their water.

3. When will the city stop all agriculture using ground water in the valley to provide water for more development and to keep the golf course green and Arena green?

I get complete silence when these subjects are proposed- except for Mike Duncan. "

Planning Director Nora Shepard added that a total of five comments were received, which included written versions of these two comments as well as three additional written comments.

3. Discussion Item

3.1 Discussion Item - Water Resources in Moab

Shepard stated that Assistant City Manager; Carly Castle, City Engineer; Chuck Williams, and City Council Member; Mike Duncan will be presenting PowerPoint Presentations which is similar to an exercise the City Council had in December.

City Engineer, Chuck Williams, started the presentations. He shared a PowerPoint that was put together for a City Council Work Session in December. He added that modifications were made to the presentation with updated information on developments. He started by saying the purpose of the presentation is to “update the Commission on the overall status of water resources in the Moab/Spanish Valley regarding recent scientific reports regarding available water quantity, potential future water management/conservation measures, and schedule of upcoming system investments. Williams presented an overview of the culinary water system, existing facilities, and financials. He stated that we operate on four springs and three wells, two of which are culinary and one which is an irrigation well. The majority of these are located in “the golf course area.” We currently have three 1 million gallon storage tanks and 48 miles of pipe under the ground in the city. He spoke about the source protection areas which are about 35 square miles. Total water use ranges between 1,800 to 2,400-acre feet per year and this varies based on different factors. There are 1,746 residential connections and 562 commercial connections in the City based on 2019 data. The annual budget is roughly \$1.25 million and is sourced through the Water Enterprise Fund. Williams stated that rates were raised last year to help achieve objectives. He spoke briefly about the meaning of hydrology, reading a passage from the presentation, “All of the physical, chemical, and biological processes involving water as it travels its various paths in the atmosphere, over and beneath the earth’s surface and through growing plants, are of interest to those who study the hydrologic cycle.” He went over definitions of Legal Standards including safe yield (from Utah code), and water rights (from UDWRi). He continued to give the definition of an acre-foot, which is about 325,851 gallons or one acre of land, one foot deep. It was cited that Ken’s Lake holds approximately 3,000-acre feet. A graphic was shown which included the watershed boundary which feeds the Moab Spanish Valley in relation to Pack Creek, Mill Creek, and Ken’s Lake. Williams mentioned recent publications such as The USGS Report, which is an evaluation of groundwater resources in the Spanish Valley Watershed, Grand, and San Juan counties. The Gardner Study is a publication that addresses more of a geochemical approach to conclusions regarding groundwater availability in the system. The Kolm Reports take a hydrogeological approach to understanding the groundwater and balances in the system. Williams gave a brief summary of the Water Distribution and Storage Master Plan. Report results comparisons were presented through a table that uses the above reports graphed in regards to their findings of groundwater discharge vs groundwater availability. The report findings for groundwater discharge were all roughly 13,000-acre feet per year. The Water Master Plan was added to the graph to show the current city groundwater usage reported (2,395-acre feet) vs the projected city groundwater usage in 2060 (3,801-acre feet) for a possible increase of 1,400-acre feet. Comparing this projection water

usage to the report findings for groundwater availability, Williams stated that it is appropriate that we are looking at water resources in the Moab Valley. The question has been asked if “we” (the Moab Valley) have enough water and Williams responded that he does not have the answer but proceeded to say that the estimated physical water availability is ranging from zero to 3,500-acre feet and the available city water rights are 9,633-acre feet (these are water rights that are not issued). He compared this to the 2060 projection from the previous slide, which shows that “our” need is less than the water rights that we have which put the city in a “good position.” The presentation ended with a couple of points: a) more scientific work is needed to reach a consensus as to the amount of undeveloped water available, and b) water management/conservation measures should be enhanced to make the most of the water we have.

Planning Commission Chair Marienfeld asked that questions be asked after each presentation.

Planning Director Shepard asked Williams to clarify if the number given for the city usage includes the golf course, or if the golf course is included in the county numbers. Williams said “generally speaking” the golf course is included in the county numbers as it is primarily watered from Ken’s Lake. However, there is a small amount used for fire suppression, he added. City Council Member Duncan stated that his impression is that the golf course is watered by a well that is drawing culinary water out of the same aquifer and it is being used for golf course irrigation. He asked if this was correct. Williams stated that generally speaking this is incorrect. Well No. 7 is what Duncan is referring to which is used if Ken’s Lake water is unavailable, water will be pumped out of Well No. 7. This well is also used to supplement fire suppression. Williams clarified that this is culinary quality water that would be used in the situations previously stated. Planning Commission Member O’Leary referred back to a slide that showed the connections for residential vs commercial properties. She asked how the number for commercial connections are computed, giving an example of a hotel vs a restaurant. Williams explained that these connections are based on a meter and an account. Duncan asked if this would be based on the physical number of pipes connected to various sizes. Williams stated that it is meter information, clarifying it is the number connected to “our” system. Shepard asked what one-acre foot equates to, meaning would one-acre foot equal enough water for a house for one year. Typically it is 1/4 to 1/3 acre-foot per year, per household. There was a brief discussion on the yearly water use of a household and Duncan briefly gave the history of the use of the measurement “acre-feet.” Planning Commission Member Knight asked how “we” compare to other communities in the southwest in terms of water conservation. Williams referred to Assistant City Manager Castle’s upcoming presentation as well as saying that “we’re not the worst, but we’re not the best.”

Assistant City Manager Castle presented a PowerPoint titled “Integrated Water Resource Planning.” Castle briefly shared her background as it pertains to Integrated Water Resource Management. She explained that Integrated Water Resource Management or Planning is a water industry term that refers to a process that promotes coordinated developments in the management of water, land, and related resources. This is done to maximize economic and social welfare without compromising natural systems. Castle introduced Water Resource Planning Principles that guide the management of the planning framework. This included the following; water planning should engage all levels of government and ensure that development and future water needs are consistent with availability and supply, determine and quantify future growth and needs, and establish and incentivize water conservation and water quality protection. She referred back to the question that has been asked, “Do we have enough water?” She stated that the answer really depends on how it is managed and how you use it. Returning to the Water Resource Planning Principles, Castle stated that land development plans should achieve development that results in sustainable land use patterns coupled with the efficient use of scarce water resources. She stated that Planning Commissions should have water in mind as they are planning for the community and approving

future and current developments. To do this “you” can protect service and groundwater supplies, promote efficient water use, protect water quality, facilitate water conservation, and require landscaping and development standards. She continued to the third standard, infrastructure which is a critical component of proper water resource management that often gets forgotten. She stated, “a sound infrastructure is very important to making sure we have enough water.” Any policymakers should prioritize funding and construction of a water infrastructure that is designed, built, and maintained to protect and conserve water resources. Keeping these principles in mind, Castle posed the question of what she sees as our biggest vulnerabilities and what should be our priorities. She indicated that we have undeveloped water conservation policies. A Water Board was created a couple of years ago, however, their focus has been on the water budget. She feels the Water Board has opportunities to start the development of conservation policies and programs. An aging water system is another vulnerability and Castle spoke briefly of our aging water system stating, “All the water doesn’t matter much if we can’t deliver it or deliver it reliably.” Another vulnerability is that we have little control over the aquifer management and our source water protection, both of which could have negative impacts on our water supply. Next, it was asked, “Where do we go from here, and what should be priorities?” Castle presented a list of priorities which she briefly reviewed. These included: continue refining the City’s understanding of the hydrological system, prioritize developing and implementing water conservation policies, promoting the investment in water infrastructure and expansion of infrastructure, continue to monitor and collect data, peruse options to protect the aquifer, and engage with the other water users. A list of potential conservation policies and programs was presented. Castle stated that this list of priorities is foundational to prudent water resource management and that any water-wise community should have these in place. The list of practices contained; leak monitoring and pipe replacement, public education campaigns, rainwater harvesting programs, ordinances (time of day watering, landscape, green infrastructure, water shortage contingency), high-efficiency rebate programs, audit high quantity users, peruse low flow retrofit programs, valley-wide interagency conservation program, outdoor watering inventory and an annual conservation report. Castle explained why these policies and programs should be in place and stated that the Water Conservation Plan update is due in 2022 which is a mandate by the state. She spoke about her time working in Salt Lake City, her experience there, and Salt Lake City’s water resource history. She made comparisons to the Moab Valley and stated that this is why she favors these “time tested” water conservation practices because they are easily implemented, defensible, and effective. Castle asked City Engineer, Chuck Williams, to speak about the upcoming infrastructure investments. Williams stated currently there is a design and permit to replace Well No. 12. This is designed and permitted through the state and would give us three wells vs the two culinary wells and one irrigation well that Williams previously spoke of. He stated that this would be constructed in the spring and that the City Council would be seeing a water bond in an upcoming meeting. This water bond will pay for this. The City will be participating with an Interagency Coalition to monitor the aquifer which includes multiple agencies. Williams stated that there will be upgrades to well houses facilities which are also budgeted in this bond. This will also address the security of our facilities. The design will be started in 2021 and will continue this optimization for 5 years as funds are available. City Council Member Duncan asked Williams if anyone has ever vandalized a well house. Williams stated that he has not heard of this but having been to these facilities and it would not take much to gain access to them. He added that this would also include security from rodents and such. Williams continued with other upcoming projects, which includes, Mill Creek Drive waterline improvements, Spanish Valley water tank, and other distribution and system upgrades. With this bond the City Council approved, we are “hitting” the three key components; supply, distribution, and storage. Castle gave a progress update from the last City Council Meeting where it was proposed that a Time of Day, Day of the Week Watering Ordinance be developed. She added that the City Council was also asked to authorize the development of a Water Shortage Contingency Plan which would be a tiered plan that

details how the City would handle a water shortage. Castle referred back to the question, “Do we have enough water?” She reiterated that it depends on how it is used, choices policymakers make and managed.

Castle asked for questions at this time.

Planning Commission Member O’Leary referred back to a slide that showed the State will require a 20% reduction by 2030 from a 2015 baseline. She asked how this would take into account changes to the population and the fact that the State has “promoted our community pretty heavily” over the last five years. Castles said that the baseline is gallons per capita, per day, which means it is not the total amount of water we use but how much each individual per capita is using. She added that this is a difficulty of our community as it is measured against our permanent population. Castle spoke about water-intensive uses such as mainly agriculture and watering lawns vs uses of our visitors. She added that the City Council and Planning Commission can target these water-intensive uses such as requiring hotels and restaurants to have water-efficient fixtures. Although our visitor’s uses are impactful, they are manageable. Planning Commission Member Wells asked what the City of Moab’s plan is for updating the water lines throughout the city and how do we compare to other cities in terms of the age of our infrastructure. City Engineer Williams said that a 10 Year Capital Improvement Plan was developed and City Council passed “more of a 7-year plan” because of the severity of the rates that would be needed to address a longer-term plan as well as the current condition of the economy. He spoke about the Mill Creek Drive Waterline Improvements. Roughly 25% to 35% of our system is over 60 years old and improvements are a function of funding and making sure that there are not too many construction projects at the same time in regards to the size of our community. Williams added that in comparison to other communities, we are on track to making good progress and that something he has noticed is Moab has seemed to be developed in phases where some of the pipes that were put in were very shallow and do not meet today’s new development standards.

City Council Member Mike Duncan started his presentation titled Moving to a Water-Restricted Future. He started by stating that Phil Gardner’s report precipitated this presentation and it was thought that we had a few years’ worth of water to grow on, but now we are not sure. Coming up are the Ground Water Management Plan and Moab Area Watershed Partnership. He asked that a couple of points are noticed; there is 2-3% growth compounds over the years, well and spring levels are declining, periodic or little snow on the mountains, periodic summer droughts, we are in La Nina precipitation cycle, and changes in the climate. Duncan showed the graphic of the watershed boundary that was previously seen in City Engineer William’s presentation and pointed out that Mill Creek has a fair amount of water running in it right now. He explained that in the middle of summer, in the daytime, this creek can be “bone dry”. The reason for this is Moab Irrigation Company’s irrigation season lasts from roughly the middle of March to the end of October. He said that what is being seen running in the creek now is base water, which is water that originates as precipitation in the high mountain areas, becoming groundwater, and as it cuts down slopes the creek is said to be “gaining” again (groundwater returns to become surface water). Duncan mentioned that Moab Irrigation Company’s water rights date back to 1890 and they currently own all the surface rights out there. It is typical for growing municipalities to appropriate (or buy) agricultural water which could be difficult. He pointed out the location of the Moab Irrigation Company’s ditches in town, east of town, and center of town. He stated that they would like to get people in town who are watering lawns with good culinary water, off of that and instead use with surface water. Duncan showed a chart that indicated the two aquifers. The next chart shown is from the Division of Water Rights website and is largely taken from monitoring wells drilled by the USGS over the years. Duncan pointed out that in 1970 there was a dry period in town and the well levels were down. When Ken’s Lake went back in, water

levels started rising. The last time Lake Powell overflowed was in 1982 and water levels have been declining ever since. Seasonal fluctuations were shown on the chart as well. The chart is oriented northwest to southeast and the wells at the northwest don't appear to be dropping as much. Moving to the next slide, Duncan stated that the City presently assumes it can serve water and does not ask for "Will Serve" letters and that during his 8 years on the County Planning Commission, "Will Serve" letters were always asked for. He read a quote from John Wesley Powell, "Years of drought and famine come and years of flood and famine come, and the climate is not changed with dance, libation or prayer." He said that as soon as there are new restrictions on water, we will hear all of these arguments come forward. Duncan said he wants to encourage Council this year to lay the infrastructure for "making a better track of water" by metering new requests for residential or commercial water and participating in the Groundwater Management Plan process. The Ground Water Management Plan completion is likely a few years out and Duncan indicated that he doesn't want to wait to start laying the groundwork mentioned in Assistant City Manager Castle's presentation. He said that he would like to get more ordinances "on the books" about how to meter water. He posed a question of what "metering water" would mean. Some ideas of this are explicitly accepting or denying requests for new water in planning applications, better records of requests, establishing an annual ERC quota and maximum limit for any single application, offering ERC "bonuses" for conservation or secondary water use, amending rules periodically, and individuals who contribute their own water wouldn't be subject to these restrictions. Speaking to culinary drinking water and groundwater, Duncan stated that water rights are not the issue but rather aquifer capacity is. He presented the yearly water usage from his calculations which are similar to the numbers presented by City Engineer Williams. The history of Moab City's water supply was briefly discussed, mentioning that from 1890 to roughly 1950 Skakle Springs (near Moab Springs Ranch) was the only water supply the city needed. When the uranium boom hit in the 1950s the city purchased George White's ranch which is now the golf course area. Duncan mentioned that he attends County Board Meetings and they are concerned due to the dry summer last year, low snowpack this year, and how we will get through next year as Ken's Lake is already "bone dry". There are discussions about leasing water from private users to get through next summer. Additionally, they had a culinary water well go down for several weeks and one of our wells went down for a shorter period. This is why a new well is needed as a backup if one of our wells goes down. Grand County depends on George White well's No. 4 and 5, the Chapman well, and the Spanish Valley well. They reported about 1,100-acre feet to DWR last year. Duncan shared a graphic of San Juan County's points of diversion that the 2011 application asked for. These are all junior water rights, which means it is first-come, first-serve and if it can be shown that their withdrawals from these port diversions impact another existing user with senior water rights, it would be a conflict that would tend to favor the senior water rights holder. This could possibly put a damper on growth out there (San Juan County). Duncan stated that his numbers show 3,800-acre feet for the total Glen Canyon Group Withdrawal which is similar to others' calculations. He stated that comments have been made which blame overnight accommodation for our water shortage. Duncan says this is not the case and cited the 2019 Sustainability Plan which showed overnight accommodations accounted for about 15% of our total irrigation uses. He said that the calculation of 3,800-acre feet does not include the Lower Spanish Valley springs or private wells. Duncan presented three techniques in determining how much water we have to use. The first technique is by modeling groundwater recharge by precipitation (snow or rain). This is difficult to do accurately due to variations of altitude, the mountainous terrain, and knowing the amounts that infiltrate into the ground. USGS was able to do this but the results had a fairly wide range. The second technique is what USGS largely used for the report. This technique observes discharge which can be metered much better to give more accurate estimates. However, using this technique, assumptions are made that recharge equals discharge and there is no easy way to verify this. The third technique is by using a combination of the two previous techniques. Duncan briefly reviewed what the 2018-2019 USGS study

found, citing the recharge method results were 10-30,000 acre-feet per year and the discharge method results were 13-15,000 acre-feet per year. He noted the 5,000-acre feet that comes down Mill Creek which are surface water rights that belong to someone else. Both of these methods are subject to variable climate data and they count for groundwater in the watershed as a whole and not just in the Glen Canyon Aquifer but also in the Valley Fill Aquifer. Duncan stated that Dr. Kolm has completed four reports; Phase 1 laid the groundwork, Phase 2 expanded Source Protection Zones, and Phase 4 which proposed an expanded monitoring plan for the area's groundwater table. Phase 2 and 4 presented water budgets for the Glen Canyon and Valley Fill aquifers. Kolm's reports showed 18,000-acre feet of water per year which passes through us. Duncan showed geological layers which were used by Kolm and spoke about these layers and how they were used. Kolm admits that there is a lot of room for error. Duncan stated that he hopes to get everyone together to "thrash" this all out in person. He then went over Dr. Gardner's findings which state there are 3,400 acre-feet per year of recharge of the "deep" Glen Canyon Aquifer. He discussed Gardner's assessment of the "deep" aquifer. Duncan stated that when asked if we have culinary water to grow on, he doesn't know but it is less than we think. The Utah Division of Water Rights is the authority that determines the legal Safe Yield value. This has not been determined as they are reluctant to put a number on it until there is confidence in what it will be. Duncan mentioned that no matter what number is assigned that it will be revised as new research becomes available. He continued saying that when it's established, if it is in the "3-4,000 acre-feet ballpark," it would imply there are no new net withdrawals from the Glen Canyon Aquifer, meaning if you wanted to put another pipe into, you would have to pump less water somewhere else. This raises the risk that if you pump too much from wells, the springs could run dry. He stated that this is a "paradigm shift" for local governments because it was always thought that there was plenty of water in the valley, but now we see with enough demand, we are running out. Other resources that could be tapped if the Glen Canyon Aquifer were closed to new withdrawals were discussed. Nothing in this scenario would come easy. There would be legal, water rights, water quality, cost, infrastructure, and environmental consequences. Duncan spoke about the options including the Moab Irrigation Company and the Valley Fill Aquifer. He mentioned that there is new research of the Valley Fill Aquifer that shows a briny water layer sitting underneath a thinner freshwater layer. There is a worry that if we continue to pump more water out of the lower Valley Fill Aquifer, that there could be a chance that briny water could up-well possibly pollute the freshwater layer. We do not know if this could happen or not. This could be another reason to stop draining the Valley Fill Aquifer, so this research is in the works. Another option mentioned was that Grand County owns unused modest water rights to the Colorado River. This has never been used as it is expensive to pump and store. Concluding the presentation, Duncan stated that more studies and research is needed and he briefly reviewed key points in his presentation and remaining slides that break down some of the report's methods and techniques.

Duncan asked for questions at this time.

Planning Commission Chair Marienfeld asked if a link could be provided to the public for these presentations. Planning Director Shepard said she would work on this.

Shepard stated that we will need to discuss the department's roles in this. Marienfeld thanked all who gave presentations.

City Council Member Mike Duncan, City Assistant Manager Carley Castle, and City Engineer Chuck Williams exited the meeting.

Planning Commission Chair Marienfeld urged the Commission Member to read all of the comments that were received. Two comments were read at the beginning of the meeting and three additional comments were sent to Commission Member's email.

Planning Commission Member O'Leary mentioned that she really enjoyed Assistant City Manager Castle's presentation and she really likes the suggestions in it. She would like to focus on these as top priorities to show the community that water is on "our" radar.

4. Future Agenda Items

Planning Director Shepard stated that they have received the Lion's Back final Master Plan Development and final plat for the first phase. This will come to the Planning Commission for review at some point. Assistant City Planner Shurtleff mentioned the Third Street Moab Town Homes project as coming before the Planning Commission as a final plat. Shepard also mention the budget and the possibility of a complete rewrite of the code. There was a short discussion on rewriting the code.

5. Adjournment

The meeting was adjourned at 7:47 pm.