

REPORT ON EVALUATION OF CONCEPTS FOR USE OF WISE RENEWABLE WATER

Grandview Estates Rural Water Conservation District (GERWCD)

April 15, 2015

Continuing discussions were held with Tim Murrell of Douglas County and with Mitch Chambers followed by Jim McGrady, Manager of the Stonegate water district, to determine the feasibility of obtaining ~100-150 acre-feet annually of renewable water through the WISE program; Douglas County has reserved about 2,700 acre feet of treated renewable water annually and Stonegate is moving forward with increasing their request from 500 to 1000 acre-feet of WISE water annually from Douglas County and Douglas County is encouraging Stonegate to work together with GERWCD to meet our needs. Financing options were discussed with Anna Mauss of the Colorado Water Conservation Board (CWCB) who is providing the loans to finance the WISE projects in Douglas County in cooperation with the State legislature. Integral Consulting and McGrane Water Engineers were contacted as potential water engineering firms to carry out pre-feasibility and feasibility studies under the Douglas County Rural Water Alternatives Program.

GERWCD contains 262 tax parcels; most are developed lots on individual wells mostly in the Lower Dawson aquifer and some in the Upper Dawson aquifer and Denver aquifer. Assuming that the groundwater is a finite resource that will no longer be available in the future, GERWCD has engaged the USGS to monitor the levels in the aquifers, which are being depleted at about 0.7'-1' per year. Prediction of water level decline has improved as more data is collected by the USGS. The 150 acre-foot/year of renewable water proposed by Stonegate would be enough to sustain household and garden use at about 0.56 acre-feet/year per lot.

Proposed Stonegate Partnership

WISE renewable water is currently available for a limited time through Douglas County and the WISE partners. The water originates on the western slope of Colorado is used by Denver and Aurora, is discharged into the South Platte River and can be reused to extinction within the Platte River watershed. Treated WISE water is available at Aurora, and incremental infrastructure will be needed to transport it to Grandview, Stonegate could deliver the water to master meters near Chambers and E-470 and near Lincoln Avenue and First Street, if desired. Stonegate is planning to build an 800 acre-foot line coming down Jordan Road and a 200 acre-foot line west of Grandview to Reuter-Hess. Maybe ~\$2M would be needed in incremental infrastructure to bring Grandview's share of renewable water to the master meters through Stonegate, assuming about \$13M to bring in the 1000 acre-feet of WISE renewable water for Stonegate. Since the CWCB loan to finance the WISE program exceeds \$10M, it will need to be approved by the legislature for the District to participate; the CWCB procedure requires at least one year of lead time to secure financing. Annual costs for the \$2M loan over 30 years to the District for the supply infrastructure alone is estimated to be ~\$115K annually assuming a 4% interest rate, averaging about \$440 per lot annually vs. a \$7.4k one-time assessment per lot.

Anticipated GERWCD Internal Costs

The GERWCD would need to develop the infrastructure to receive the water within the subdivision (cost unknown) and operate the system. Costs for the water at the point of delivery in Aurora are ~\$5.40/1000 gallons (\$1.75K/acre-foot). Stonegate estimates their charges would start at \$8/1000 gallons (\$2.61K/acre-foot) at the two master meters, estimated usage for 150 acre-feet ~\$391K annually or ~\$1.49K/lot average, annually. No renewable water will be available during drought, maybe 15% of the time, and it will be available mostly during winter, so storage is needed.

Reuter-Hess Storage Option

Use of Reuter-Hess Reservoir for storage is possible at ~\$5.5K per acre-foot, Stonegate recommends purchase of 100 acre-feet of storage at a cost of \$0.55M. Financing this storage option with the loan would add \$31.6K annually or \$120 per lot average, annually, vs. a one-time ~\$2.1K assessment per lot.

WISE Water Reserved by Douglas County

GERWCD would need to reserve the WISE water by 2018 and receive the water in 2019, leaving only four years for implementation of the infrastructure, if started in 2015. If GERWCD wished to delay delivery of the renewable water until 2031, it would cost the County \$35/acre-foot/year to continue to reserve the water. Douglas County is carrying the cost of reserving 2,775 acre-feet per year of WISE water, 2,000 acre-feet/year for WISE members and 775 acre-feet for non-members, such as GERWCD, paying \$97.125K per year until 2021. They need to inform WISE in January 15, 2021, if they need to carry over any reserved water to be used before 2030, if still available. The latest date that the non-members could delay delivery is June 1, 2031. The ~\$2.55M for GERWCD's share of the external infrastructure and Reuter-Hess storage cost could be financed by a 30-year CWCB loan, a mill levy nor assessment could probably not be used to service the loan at ~\$147K annually, due to statutory limits on mill levies and assessments for water conservancy districts. Annual costs could be about \$560 per lot, average, annually or ~\$9.4k one-time payment per lot. Additional infrastructure costs for the GERWCD distribution system could be financed in the same way or by tap fee.

Aquifer Storage Option

Aquifer Storage and Recovery (ASR) in the Dawson aquifer was identified as a possibility for GERWCD by Stonegate's previous manager. If this is feasible, the initial configuration could possibly be for the placement of the renewable water in storage in the Dawson aquifer used by the subdivision and the homes could continue to use their individual wells for some time to enable staged implementation of the GERWCD water distribution system. Based on average flow estimates the 150 acre-feet of renewable water would need to be injected into the Grandview Estates aquifers averaging 94 gallons/minute. Assuming the use of two nominal 100 gallon/minute injection wells in the Dawson aquifer, the injection could be accomplished in the six months when water demand is low. Injection wells could be placed near Lincoln Avenue due to the north by northwest natural regional groundwater flow. Assuming that the hydraulic conductivity of the Dawson aquifer is 3-7 feet per day it would take

any water injected 2-5 years to move a mile through the District. The USGS monitoring program would be used to continue to monitor the level of the water in the District.

If a homeowner well begins to fail prior to implementation of the home distribution system, the homeowner could have the option to connect directly to the District's renewable water system, instead of replacing the well. When drought conditions prevail on the direct master meter, the homeowner's well or the District's wells could provide the water, by reversing the injection wells. Staged implementation of the distribution system could possibly lower costs in the short-term.

The USGS is interested in assisting GERWCD on evaluating the ASR option. A pre-proposal was requested from the USGS for the District to review, but further scope development is needed. The preliminary cost estimates for a prefeasibility study to compare the other water supply options with ASR is \$10K and to carry out the prefeasibility study for the evaluating the ASR option ranges from \$50K-\$150K without drilling or surveying.

Douglas County Rural Water Alternatives Program

Preliminary capital and operating costs for the water supply options need to be developed and trade-offs considered by the District Board at a conceptual level for the use of WISE water. Cost of the studies need to be considered in the budgeting process, in order to meet the WISE delivery deadline, \$2000 was included in the Draft 2015 District budget for renewable water and augmentation. Cost sharing with Douglas County on the engineering design would be preferred through the Douglas County Rural Water Alternatives Program, using an engineering firm of the District's choice. The declining water levels establish the need for renewable water, which were supported by the USGS database and 2013 report that indicated 2.2 feet/year decline in the Lower Dawson and 1.4 feet/year in the Denver aquifers. To initiate the County assistance, the Chairman of the District Board signed a letter to the County, stating the problem, declining water levels, demonstrated neighborhood support by providing a copy of the ballot initiative forming the District, described the process that we are going through to evaluate cooperation with Stonegate and described the research program for water supply options. This resulted in a meeting between Douglas County and the District Board to discuss the program.

As a result of that meeting, the County requested that GERWCD meet again with Stonegate, which has been completed. Stonegate requested that we return to the County and secure the 150 acre-feet of WISE water. Two firms, MSK Consulting and Integral Consulting, which both have ASR experience, have been contacted to prepare preliminary cost proposals to evaluate the water supply options. The County requested an additional survey of well owners be carried out in GERWCD, prior to commitment of program funds. Some suggested survey questions were received from the County and were reviewed by the District Board, including:

- rating of the quality of their water supply,
- support for County funding of the pre-feasibility study, and
- an average cost estimate of ~\$50K per home to be financed over 20-30 years to develop a reliable water supply.

The District Board appointed a Communications Committee Chair to secure community assistance with conducting the survey, and the draft survey was presented to the County, but was not approved. The County provided standard survey questions to be used and approved the draft survey format, for consideration by the District Board at the September 2014, meeting. The Grandview Estates Homeowners Association (GEHA) approved funding of printing, distribution and return postage for the survey up to a maximum cost of \$800.00.

The survey was conducted during October-November, 2014, and two surveys were received after the deadline (48% return). Results for the final tabulation and District responses to the concerns raised are attached. Responses indicated that the respondents were satisfied with their water supply (92%), had many concerns (72%) about the proposed program and supported the County conducting the pre-feasibility study (58%), even though only 34% supported transitioning away from use of their domestic wells and only 25% supported financing \$50,000 in costs to hook up to a water utility and finance the costs over 20-30 years.

The survey results were accepted by the County, however “the survey results you provided do not point to an absolute need for an alternative water supply,” according to Tim Murrell of Douglas County. Therefore County funds are not currently available so the County will not proceed with the preliminary engineering to identify the best local economic and permanent alternatives available, using the engineer of the District’s choice. Tim Murrell is “... in the process of working with the Board to reduce the qualifications so that subdivisions like yours could qualify, assuming there was significant community support for such a project.” Capping of domestic wells will be encouraged by the County, following success of the program in hooking up the homes to a more economical, reliable and renewable water supply.

The Board identified the following alternatives to consider for County funded pre-feasibility;

1. Continue operating private wells until no longer viable and revisit the other water supply options available then. Homeowners replace failed wells as needed. Investigate rainwater harvesting by individual homeowners.
2. Invest in external infrastructure to bring WISE water through Stonegate now to meet the deadline for water commitment.
3. Develop aquifer storage and recovery for the short-term with option 2, stage development of the GERWCD distribution system, if possible.
4. Implement option 3 with immediate installation of the District distribution system.
5. Invest in Reuter-Hess storage with option 4 in place of ASR.
6. Include sewer distribution system installation with option 3, 4 or 5.
7. Include grey water distribution system installation with option 6 for outdoor use.

Tim Murrell suggests we revisit participation in the program in 2-3 years.

CUMULATIVE REPORT - Official Results

Douglas County Water Alternatives Standard Survey

1-Mar-15

Total # of surveys mailed:	243	
Total # of surveys returned:	116	
% of total surveys mailed:	47.74%	
	ACTUAL #	% OF TOTAL RETURNED
1. Where would you rate your current domestic water supply?		
a. Good (flow consistent/good quality)	107	92.2%
b. Intermittent (sometimes good/sometimes poor)	6	5.17%
c. Poor (either or both quality or quantity issues)	1	0.86%
MAYBE	0	0.00%
NO ANSWER	2	1.72%
TOTAL	116	100%
2. Do you support the concept of transitioning away from your domestic well to a renewable community water supply?		
a. Yes	40	34.5%
b. No	66	56.9%
MAYBE	8	6.90%
NO ANSWER	2	1.72%
TOTAL	116	100%
3. Douglas County is considering providing resources through their Water Alternatives Program to the GERWCD. Successful Program admission would, through a feasibility study, identify a range of project costs, necessary process, water supply, and funding options associated with the development of a renewable community water system. Do you support your community's involvement of such a study?		
a. Yes	67	57.8%
b. No	44	37.9%
MAYBE	3	2.59%
NO ANSWER	2	1.72%
TOTAL	116	100%
4. The average cost for existing Program participants to hook up to a water utility (infrastructure, water supply, tap fees, district inclusion) hovers around \$50,000 per home. Though each neighborhood is different, is this a cost you would be willing to finance over a 20-30 year timeframe for a reliable supply?		
a. Yes	29	25.0%
b. No	79	68.1%
MAYBE	1	0.86%
NO ANSWER	7	6.03%
TOTAL	116	100%
5. Besides Program costs, what other concerns, if any, do you have with your community participating in the WaterAlternatives Program? (See attached Exhibit A.)		
a. Written Response	84	72.4%
b. Blank Response	32	27.6%
TOTAL	116	100%

I. Cost Concerns

Category

Costs are high

How much will this cost per month? (New water bill.)

Cost of monthly water bills.

Cost prohibitive.

COST!!!

Q4 - Seems high cost.

None besides cost.

We would not be in a situation that would not allow us to decide this and pay for unnecessary fees.

Just costs.

Costs and feasibility of using water that is only available in wet years at a very high cost.

Cost - Tap Fees - On-going billing

Would like to think that water costs on a monthly basis would not be exorbitant.

We are not interested in renewable water resources, especially because of the financial obligation.

None other than cost.

Hook up is one thing. What about maintenance and unexpected costs and underestimates. At \$200.00/month, we would have to give up cable and food.

Answer

I.1) Costs are unknown at this stage of the planning, a pre-feasibility study will be needed to identify the relative costs of the options, and a feasibility study for financing the most economical option and determination of where the proceeds will go.

See I.1)

I.2) This is also a great consideration that the feasibility study will not address, but that all homeowners would have to agree upon and vote upon before any decisions are made on hookup. The reservation of the water is just to have a source to fall back upon.

Program cost are the most important issue; \$2,500/yr. per home too high.

Tap water is just too expensive when one has horses and other farm animals.

We are on a very small fixed income (SS) and cannot or will not finance the costs to hook up to a water utility and thus have to pay exorbitant fees per month for the use of water.

Q4 If the study shows alternatives are needed, I would support them but hope the costs would be less than this. There are many in our community who couldn't afford such a program. I would hope financial assistance could be provided if such a program were to proceed.

Why should I give up my water rights and zero fees, to purchase water controlled by for profit company

Affordability

Pay for water

Now we have to pay to get water elsewhere - not right.

Do NOT want a water bill! I like my water & do not want to be pressured into "community water supply" even if infrastructure were FREE! No!

I.3) If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit.

See I.3)

I.4) There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

I.5) The pre-feasibility study will address whether alternatives are needed. the feasibility study will demonstrate whether the selected method of storage and delivery is workable, and what it will cost. The homeowners and the water district working together will have to evaluate the need and the urgency of the need.

I.7) Giving up water rights by constituents is not being considered by GERWCD to obtain renewable water. No good reason. The possibility of retaining water rights and using ground water for irrigation or for household use exclusively is what the District was exploring.

I.8) The objective of the pre-feasibility study is to determine the most economical water supply option for the constituents of the District.

I.9) The pre-feasibility study is needed to determine if there is a need to pay for renewable water in the long term, when the domestic wells are more costly to operate or are no longer viable.

See I.9)

See I.9)

Monthly charge for water.

See I.9)

Monthly fees.

See I.9)

Procedure for payment

I.10) The method of financing future water supplies is not known at this stage of planning. The pre-feasibility study needs to be completed to determine the optimum financing method for the GERWCD future water supplies. The \$50K is a preliminary estimate based on County experience and is not necessarily reflective of the needs of GERWCD. GERWCD does not require the transfer of private water rights to finance the future water supply, that would up to the individual property owner. Voluntary participation is preferred by GERWCD.

The fact is that we are at retirement age and will not be around for 20-30 years to pay off this \$50,000 debt. What happens when we sell or die even? Does the cost go to the buyer?

See I.10)

Would we be asked to sign over our water rights for zero compensation? Would the next hurdle be our leaching fields and another \$50K for a community sewer system? Would this \$50K be assessed on vacant land? Or at the time of getting a building permit?

See I.10)

If a homeowner sells their home after the \$50,000 is financed on the individual home. Does the seller need to pay off the \$50,000 balance prior to the sale of the home or does the new owner acquire the balance?

See I.10)

If participation is voluntary. Concern for mandated participation. Is the \$50,000 fixed or will interest be added?

See I.10)

Taxes

I.11) GERWCD has a 1.5 mil tax rate and can only increase the levy by 1.5 mill per year until water is provided and 3 mills per year after water is provided, which must be approved by election. Annual costs equates to ~\$50 to ~100 per lot respectively for each of those mill levy increases. The County is taking the position that will not fund a feasibility study, at this time.

We were here first, paid taxes for 30 years. Why should we have to pay anything? County gov't. should pay this!
Impact on taxes.

Cost overruns

What about maintenance and unexpected costs and underestimates.
Dependent on cost breakdown

Sunk costs in well

Cost would be it and the costs already incurred to have a well.
I chose to drill a new well and make this investment to insure my water supply.

Factors for cost to homeowners

What factors would influence the cost per home owner?

O&M costs

See I.11)

See I.11)

I.12) The pre-feasibility study is needed to quantify the relative costs of the water supply options, actual costs estimates will not be available until the feasibility study is completed. GERWCD has not committed to any costs other than the survey execution and the Grandview Estates Homeowner Association has covered most of the costs to date for the survey.

See I.12)

See I.12)

I.13) The cost of replacing and maintaining the wells within GERWDC are not known, this is part of the base case for the pre-feasibility study.

See I.13)

See I.13)

I.14) Relative costs would be estimated during the pre-feasibility study and costs for the most economical option and the cost factors will be determined during the feasibility study, prior to implementation.

See I.14)

I.15) Continued us of individual wells including storage tanks should be part of the base case options, the cost of this option is not known at this stage of planning. GERWCD needs to identify the preferred option during feasibility in order to develop the operation and maintenance costs as well as implementation time line during feasibility studies.

County should pay

I.16) The County is offering to pay for a feasibility study when there is need, community support and if funds are available. Costs beyond the feasibility study are expected to be reimbursed by the GERWCD.

Development should pay

I.17) The Douglas County Master Plan does not require the developments to pay for impacts on surrounding land, this is a State issue outside of the jurisdiction of GERWCD. El Paso County has a higher standard of a 200 year aquifer life, Douglas County aligns with the state requirement of a 100 year aquifer life.

Rising water rates

I.18) The water rates that will be charged for renewable water are not known at the current stage of planning. Preliminary estimates from Stonegate are \$5.40 per 1000 gallons or \$1760/acre-foot at Aurora before delivery and delivered cost to GERWCD is estimated to be \$8/1000 gallons or \$2610/acre-foot before distribution. The feasibility study is needed to estimate the delivered cost to domestic users and the volume of water needed to sustain the District.

The Denver Water Department has been around for years with established water rights and infrastructure. Yet a few years ago, they were running into funding problems and decided to raise water rates on a progressive scale based on water usage. In response people quit watering their lawns and their revenue plunged so the funding issues persisted. Their solution was to raise their base and lower tier rates so the end result was a death spiral where if you use less, you have to pay more and the less you use the more your rates go up. In the sewage arena, similar problems have been encountered.

I.19) The quality of the cost estimate is very low at this stage of planning. The feasibility study will provide higher confidence in the cost estimates.

What about maintenance and unexpected costs and underestimates.

See I.19)

We should be receiving our water at the same price we pay now.

Deferral of costs to future

The supply needs to be guaranteed and deferred to the future as much as possible - costs especially, as we have a good supply in the Denver aquifer.

We need more information as to when this should happen, but at the County's expense,

We are traditionally an agriculture and livestock based community and want to keep it that way. The cost of gardening and raising animals on city water is not financially feasible.

Personal finance or community plan?

What factors would influence the cost per home owner? Size of acreage? Other factors?

I.20) There is an argument that homeowners detrimentally relied on the status quo when they purchased their homes; but unless the homeowner can prove that the water was a guaranteed quantity upon purchase of the home, there would be no cause of action against the seller, the realtor, the county, or any other entity,

I.21) GERWCD supports this strategy, to continue use of the private wells until renewable water is more economical, however, there is a risk that renewable water may not be available at the proper point in time. The feasibility study is needed to develop that option with the support of the County.

I.22) The pre-feasibility study is needed to evaluate costs the water supply options available to GERWCD. The results will inform a decision on the direction of the feasibility study.

I.23) GERWCD supports continued use of the private wells as long as it is the most economic water supply alternative. The pre-feasibility study is needed to determine how sustainable current water use practices are.

I.24) The method of financing future water supplies is not known at this stage of planning, the pre-feasibility study needs to be completed to determine the optimum financing method for the GERWCD future water supplies.

See I.24)

I.25) The cost per household could be influenced by the length of pipe needed for connection from the road and the distance between hookups. After the infrastructure cost, there would also be fluctuation of metered usage cost based upon homeowner needs.

Why should we have to pay anything?

At the very least, it should be investigated as an alternative since it would certainly be cheaper than the \$50K per household up front charge along with a metered monthly charge for water usage, administration, and infrastructure maintenance.

We did not create this problem - county gov't did. County gov't. should pay this!

Douglas County is not being responsible in allowing high density development without proper water resources. If WAP is to be done cost of adding GERWCD properties should be borne by developments.

I.26) If our present water supply becomes unavailable or nonpotable , then we will have to pay. Some homeowners in the community already pay for bottled drinking water. The district was formed to try to insure that our water does not become unavailable or nonpotable due to migration from other storage or depletion from other wells.

I.27) We would want to put provisions in any contractual agreement to limit our responsibility for any overrun in cost. Contingencies could be to preserve the potential use of our wells and/or to enforce a liquidated damages clause in the contract. Maintenance would be covered by the monthly fees, and there is the rub: depending on when (or if) we do this, those monthly fees are unknown.

I.28) The District agrees that county development has caused the problem, but it is unknown what our taxes would be without the development (or some would say overdevelopment that has taken place). In counties that limit development, taxes tend to be higher.

I.29) GERWCD Board members may individually agree with this statement but it doesn't change the circumstances.

If the study shows alternatives are needed, I would support them but hope the costs would be less than this. There are many in our community who couldn't afford such a program. I would hope financial assistance could be provided if such a program were to proceed.

I own the lot next to me. Would that double my cost to \$100,000? Frankly, the cost seems very high, especially as I approach my retirement years.

I am on a fixed income - retired - and cannot commit to any more costs.

Sorry, but \$50k on fixed income is undoable.

See I.1), I.3) and I.4) Costs are unknown at this stage of the planning, a pre-feasibility study will be needed to identify the relative costs of the options, and a feasibility study for financing the most economical option and determination of where the proceeds will go. If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit. There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

I.30) Financing of any renewable water option will likely involve a mil levy component which will increase costs for multiple lots. A water conservancy district has limitations on increases of mil levies which must be approved by election. No increases of mil levies are likely in GERWCD until renewable water is delivered.

See I.3) and I.4) If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit. There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

See I.3) and I.4) If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit. There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

I am on a fixed income - retired - and cannot commit to any more costs.

See I.3) and I.4) If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit. There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

Sorry, but \$50k on fixed income is undoable.

See I.3) and I.4) If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit. There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

How do those who don't have the money (or credit) pay for the water utility?

See I.3) and I.4) If cost is prohibitive, then we will have to concentrate on conserving our supply, keeping it clean, and developing other options such as rainwater harvesting, which is legal in our subdivision with a well permit. There is also the possibility that some neighbors can cover the costs of other neighbors, with the formation of a group to assure that contributions are tax deductible.

II. Outside Influence Concerns

Category

Overdevelopment

GERWCD Response

II.1) The water rights are administered by the State according to statute. The County regulates the land development according to the Master Plan, zoning and subdivision resolutions. GERWCD has no authority to require the County to provide the water supply, we are merely working with the County in an effort to determine the best options are available for our future water supply, following the rules of the County program.

With the County's very short sighted policy of allowing ever increasing amounts of water-hungry ground cover, specifically Kentucky Blue Grass, to be sustained using aquifer water, it will most likely be sooner than later.

See II.1)

Douglas County is not being responsible in allowing high density development without proper water resources.

See II.1)

I wish the area would stop tapping into the aquifer recklessly. My little well hardly compares to some of the other commercial or community use. Focus efforts there!

See II.1)

Note: the county really needs to restrict more developments to conserve the water we have.

See II.1)

Cost only concern due to water shortage is caused by poor water management by the County.

See II.1)

Douglas County is giving building permits all around to make money. It is not wonder there is less and less water for this community.

See II.1)

Common sense dictates that our aquifers can only support water to a specific number of people and businesses. If the demand exceeds what the aquifers are able to support yearly than action must be taken to stop population growth. State and County officials should stop and study who is gaining in controlling our water sources state wide and financially. Greed and water power control is the objective I'm believing somewhat.

See II.1)

Stop building so many houses.

See II.1)

We should have never had to consider this if the County would not allow massive communities to drill super wells.	See II.1)
Concerns me that Arapahoe County can remove our water from beneath us and sell it back to us. We should be receiving our water at the same price we pay now.	See II.1)
Note: the county really needs to restrict more developments to conserve the water we have.	See II.1)
Do not TRUST Douglas County.	See II.1)
State and County officials should stop and study who is gaining in controlling our water sources state wide and financially.	See II.1)
Greed and water power control is the objective I'm believing somewhat.	See II.1)
We've been here longer than any other community. County has allowed too many taps into our water supply. Now we have to pay to get water elsewhere - not right.	II.2) The is no requirement to pay for water, now, The GERWDC is cooperating with the County to obtain a renewable water supply when it is needed in the future,
We do not agree with using an alternate source or conserving when communities are being built and using water we have - why should we pay for an alternate source so others can use our water?	See II.2)
Would we be asked to sign over our water rights for zero compensation? Would this \$50K be assessed on vacant land? Or at the time of getting a building permit?	II.3) There is no proposal for signing over water rights. II.4) The feasibility study would determine which options will be available for funding the renewable water system.
Concern for mandated participation. Is the \$50,000 fixed or will interest be added?	See II.4) The feasibility study would determine which options will be available for funding the renewable water system.
Water provider wants aquifer rights	II.6) GERWCD has no interest in providing property owner ground water rights to the WISE program, it is the policy of GERWCD to protect individual water rights within the District and to encourage adjudication by the land owners. Preliminary discussions held with Stonegate suggested that GERWCD well owners should maintain their wells to use during drought periods when renewable water is not available.

Waste of water for community common areas due to unmonitored watering systems which lead to excessive water running down the streets of the communities.

Tri-County health makes no secret about wanting to get rid of individual septic systems. My concern is that permits required for infrastructure improvements to run water lines in Grandview and issues about if the renewable water has to be returned to a provider would force us to install a sewer system simultaneously with the water system. I'm guessing such a gravity fed system could easily double the \$50K cost per household. This needs to be investigated along with requirements mandated in Tri-County Regulation I-02 and CRS 32-1-1006 (1)(h)(I)(D) when considering that Airport Vista on our western boundary proposes to ultimately have a sanitary sewer line within 100 feet of Grandview Estates.

Would the next hurdle be our leaching fields and another \$50K for a community sewer system?

Sewer?

My concern is that permits required for infrastructure improvements to run water lines in Grandview and issues about if the renewable water has to be returned to a provider would force us to install a sewer system simultaneously with the water system.

Government restrictions on effluent discharged from sewer plants have required massive investments in order to be in compliance, which has resulted in sewer rates in Denver going up by 460% over the last 12 years.

What if Denver & Aurora find out they need all the water and don't have excess?

The supply needs to be guaranteed and deferred to the future as much as possible

Can we sell our current water rights?

II.7) GERWCD has a water conservation plan currently, which stores it's adjudicated water in the aquifers and accumulates the annual appropriation.

II.9) The proposed feasibility study focuses on renewable water and consideration of sewer being included will be to determine whether or not there is significant financial benefit to include sewer to reduce the cost of separate installation.

See II.9)

See II.9)

See II.9)

See II.9)

II.10) Any agreement for obtaining renewable water by GERWCD must include frequency of availability to base the storage requirements as part of the feasibility study.

See II.10)

II.12) Anyone with water rights is able to sell them at any time, those on well permits cannot. GERWCD has no intention of selling its water rights.

1. What priority would be given, if someone has adjudicated water over another household that does not? These water rights can be severed from the property legally.

Is the community being told the whole truth?

I like my water & do not want to be pressured into "community water supply" even if infrastructure were FREE!

Do not want to drink reclaimed or renewable water.

City water is toxic.

Where is this water coming from?

What happens with our septic systems?
how fast are wells dropping?

Safety and security. Quality of water & lack of exposure to anyone desiring to taint our water, be they terrorists, frackers of whatever.

Your climate change predictions are baseless.

What about "Lake Grandview" to the east??

II.13) Use of adjudicated water rights is not anticipated for GERWCD to obtain a source of renewable water

II.14) GERWCD has open public records and provides the community with truthful information to the best of its ability.

II.15) GERWCD has no ability or intention to apply pressure to the community to obtain a renewable water supply, the intention is to plan for the future needs of the District for water supplies when needed.

II.16) GERWDC is only considering obtaining a source of renewable water supply in the proposed feasibility study, assuming that our aquifer sources will not be available at some point in the future.

II.17) A renewable water supply must meet USEPA primary drinking water standards for protection of human health.

II.18) The WISE water comes from the Platte River near Aurora and is treated and mixed with aquifer water prior to distribution.

II.19) Septic systems are not part of the feasibility study.

II.20) Limited water monitoring data developed by the GERWCD and USGS indicates that the Dawson and Denver aquifer levels are declining at a rate of 1-3' per year.

II.21) GERWCD is committed to protect the quality of the water supply within the District.

II.22) GERWCD makes no climate change predictions, although it is a scientific fact that the frequency of extreme weather events are increasing.

II.23) GERWCD has no access to the non-potable water source in Chambers Reservoir.

We have been here for many years before others and the new houses are using up GE water (sometimes illegally) and reducing our water supply - apparently some entity is not protecting our supply.

See II.1) The water rights are administered by the State according to statute. The County regulates the land development according to the Master Plan, zoning and subdivision resolutions. GERWCD has no authority to require the County to provide the water supply, we are merely working with the County in an effort to determine the best options are available for our future water supply, following the rules of the County program.

II.5) The GERWCD is charged with protecting you water supply, within the limitations of State statutes and a 1.5 mill levy.

Why should I give up my water rights and zero fees, to purchase water controlled by for profit company, so the county can give what used to be my water to developers to pump and sell to new homes?

See II.1) and II.13)The water rights are administered by the State according to statute. The County regulates the land development according to the Master Plan, zoning and subdivision resolutions. GERWCD has no authority to require the County to provide the water supply, we are merely working with the County in an effort to determine the best options are available for our future water supply, following the rules of the County program. Use of adjudicated water rights is not anticipated for GERWCD to obtain a source of renewable water

From what I've heard when a domestic water supply becomes available, the water provider wants ownership of any water rights of a property owner being supplied with his renewable water.

See II.1) and II.6) The water rights are administered by the State according to statute. The County regulates the land development according to the Master Plan, zoning and subdivision resolutions. GERWCD has no authority to require the County to provide the water supply, we are merely working with the County in an effort to determine the best options are available for our future water supply, following the rules of the County program. GERWCD has no interest in providing property owner ground water rights to the WISE program, it is the policy of GERWCD to protect individual water rights within the District and to encourage adjudication by the land owners. Preliminary discussions held with Stonegate suggested that GERWCD well owners should maintain their wells to use during drought periods when renewable water is not available.

Would we be asked to sign over our water rights for zero compensation? Would this \$50K be assessed on vacant land? Or at the time of getting a building permit?

See II.1) and II.6) The water rights are administered by the State according to statute. The County regulates the land development according to the Master Plan, zoning and subdivision resolutions. GERWCD has no authority to require the County to provide the water supply, we are merely working with the County in an effort to determine the best options are available for our future water supply, following the rules of the County program. GERWCD has no interest in providing property owner ground water rights to the WISE program, it is the policy of GERWCD to protect individual water rights within the District and to encourage adjudication by the land owners. Preliminary discussions held with Stonegate suggested that GERWCD well owners should maintain their wells to use during drought periods when renewable water is not available.

Water board must stop the use of and waste of water by severely limiting the amount of landscape in need of irrigation, both by homeowners but also by City & County.

See II.1) and II.7) The water rights are administered by the State according to statute. The County regulates the land development according to the Master Plan, zoning and subdivision resolutions. GERWCD has no authority to require the County to provide the water supply, we are merely working with the County in an effort to determine the best options are available for our future water supply, following the rules of the County program. GERWCD has a water conservation plan currently, which stores it's adjudicated water in the aquifers and accumulates the annual appropriation. II.8) GERWCD has no authority to restrict water use by homeowners, city and county.

Who are existing "program participants"? Is "buying" excess water when Denver/Aurora "don't need" realistic? + included in \$50,000 "over 20-30 years" - who decides need of Aurora/Denver?

See II.10) Any agreement for obtaining renewable water by GERWCD must include frequency of availability to base the storage requirements as part of the feasibility study. II.11) Determining who the program participants are will be part of the feasibility study.

Parker water rates are a concern.

See II.11) Determining who the program participants are will be part of the feasibility study.

Is Parker involved? Who going to administer?

See II.11)

Who are existing "program participants"? Is "buying" excess water when Denver/Aurora "don't need" realistic? + included in \$50,000 "over 20-30 years" - who decides need of Aurora/Denver?

See II.11)

Losing the right to have my well.

See II.6)

III. Base Case - Continue "As Is" Concerns

Concern

Continue to use wells

Answer

III.1) GERWCD agrees that the existing well network should be used until the water is depleted in the aquifers to such an extent that the cost of operation of the private wells exceeds the cost of establishing a renewable water system. A feasibility study is needed to determine when that happens so that it can be planned and installed in time.

It is inevitable that aquifer water will run out sooner or later. We have an excellent 530 ft. well. I doubt that it's in jeopardy in the immediate future. Furthermore, it's likely that we won't be in our house more than 10 years from now, because of our old age. None the less, the wise move now is to begin the process of planning for an alternative water source. However, for the reasons stated above, as well as others, should the planning process involve substantial costs within a year or so, we would not be inclined to support it.

See III.1)

Don't want to leave well water. Moved here to not be tied to city chlorinated/fluoridated water.

See III.1)

I am happy with my well. My little well hardly compares to some of the other commercial or community use. Focus efforts there!

See III.1)

We are traditionally an agriculture and livestock based community and want to keep it that way.

See III.1)

We live in GV because they are unique properties. I like the fact that the water and sewer are off the system and I believe our well and septic will work well for many years.

See III.1)

Q2 - only if critically necessary. We enjoy our independence and current well water supply.

See III.1)

Not interested now and will never be - well and water are fine.

See III.1)

We and the neighboring subdivisions currently enjoy a fairly high hydrostatic pressure in the aquifers that enables a wide range of sustained pumping rates ranging from several hundreds of gallons per minute (gpm) for the subdivision municipal wells to 10-15 gpm for our domestic wells. As the water levels drop over time, the hydrostatic pressure will drop and the high pumping rates will no longer be sustainable for the large capacity municipal wells and this will force the subdivisions to implement other options in order to meet the demands of their customers. We on the other hand with individual low capacity wells will still be able to meet our needs for a while at 10-15 gpm rates. Eventually the water level will drop further and reach what is referred to as the water table where the hydrostatic pressure will no longer sustain the 10-15 gpm rates. However there will still be water in the aquifer and in order to harvest this water, we will have to change our pumping methodology to something similar to what is done in the low capacity mountain aquifers. Specifically, rather than pumping water infrequently and on demand anytime we want it and buffering it into a small storage tank, we will have to start pumping frequently and randomly at lower rates and storing it in larger storage tanks whenever the water percolates through the aquifer sands and reaches some pre-determined water level that is sufficient for pumping. Also, if these tanks aren't pressurized (they are lower cost than pressurized tanks), then a boost pump will be required to get the water pressure up to household levels. Since Grandview is positioned over the deeper part of the aquifers and our wells are spaced fairly far apart and the aquifers appear to recharge to some extent, it's not clear we couldn't do this indefinitely especially if the large capacity municipal wells are no longer online. At the very least, it should be investigated as an alternative since it would certainly be cheaper than the \$50K per household up front charge along with a metered monthly charge for water usage, administration, and infrastructure maintenance.

See III.1)

Q2 - only if critically necessary. We enjoy our independence and current well water supply.

See III.1)

Q2 - only if wells go bad. Q4 if it comes to do this. Keep me informed about what is going on and what needs to be taken care of to make this change when it is required.

See III.1)

Don't want to leave well water. Moved here to not be tied to city chlorinated/fluoridated water.

See III.1)

We have an excellent 530 ft. well. I doubt that it's in jeopardy in the immediate future. Furthermore, it's likely that we won't be in our house more than 10 years from now, because of our old age.

See III.1)

We've been here longer than any other community.

See III.1)

We moved to Grandview in part for the property and "being on a well."

See III.1)

We are on a very small fixed income (SS) and cannot or will not finance the costs to hook up to a water utility and thus have to pay exorbitant fees per month for the use of water. Again this is the reason we moved to property to have a well.

Worry about other problems. This is not a problem that needs to be addressed at this moment or ever!!! "Walk away" per my 3-yr. old niece.

See III.1)

Would property owners need to agree to abandon use of their current wells? (hopefully not)

III.2) GERWCD is determining the feasibility of transitioning to renewable water, when needed, continued use of individual wells will likely be necessary until such a system is implemented. Nothing discussed to date precludes the on-going use of individual wells and replacement wells.

Can we continue to use our well if a community water system is in place, or is it one or the other?

See III.2)

Keeping my well in working order!

See III.2)

City water is toxic. The cost of gardening and raising animals on city water is not financially feasible, and most importantly, it is toxic.

III.3) Municipal water sources must meet USEPA primary drinking water standards that are protective of human health.

Based on a conversation I had with Steve Board a few years ago, it is not clear renewable water is the only option to solve our long-term water problem.

III.4) GERWCD is open to other ideas on how to extend the life of the existing network of wells which will delay the implementation of a renewable water alternative.

However there will still be water in the aquifer and in order to harvest this water, we will have to change our pumping methodology to something similar to what is done in the low capacity mountain aquifers. Specifically, rather than pumping water infrequently and on demand anytime we want it and buffering it into a small storage tank, we will have to start pumping frequently and randomly at lower rates and storing it in larger storage tanks whenever the water percolates through the aquifer sands and reaches some pre-determined water level that is sufficient for pumping. Also, if these tanks aren't pressurized (they are lower cost than pressurized tanks), then a boost pump will be required to get the water pressure up to household levels. Since Grandview is positioned over the deeper part of the aquifers and our wells are spaced fairly far apart and the aquifers appear to recharge to some extent, it's not clear we couldn't do this indefinitely especially if the large capacity municipal wells are no longer online.

If I am going to spend \$50k I had better be hooking to a mountain fed reservoir system like Denver or Aurora water. If all we are doing is pumping from a different level or place, then I am not gaining insurance for water availability.

I think you are putting your nose in other people's business. This is all stupid.

Q1 - flow is consistent/quality poor (odor).

I chose to drill a new well and make this investment to insure my water supply. People who purchase in GVE should take time to research the well on their property.

See III.4)

III.5) GERWCD is not aware of another alternative for renewable water other than WISE. The WISE water is reused out of the Platte river, treated and mixed with some aquifer water by Aurora prior to distribution.

III.6) GERWCD is investigating the feasibility of establishing a renewable water system in the future under a county funded program, participation in the survey is voluntary and no intrusion is intended.

III.7) Tri-County Health provides services to measure water quality and the results can be used by a water treatment service provider to mitigate the odor issue for the well.

III.8) Replacement of wells is an option to defer establishing a renewable water system. The feasibility study should include this option for the base case,

Where is the \$ funding for the water authority been spent? Can we see an audit.

III.9) GERWCD is exempt from State audit, however an independent bookkeeper prepares an annual report that can be included in the newsletter.

IV. Renewable Water Options Analysis Concerns

Category

Q4 - I circled yes and no on question #4 because I really would need to learn more.

Answer

IV.1) GERWCD and Douglas County are still at an early stage in the renewable water project; determining if County funds should be used to support a feasibility study. The results of the survey indicate that the need is not immediate, so the available funds will be used for other higher priority communities. Additional information will be available when the feasibility study is completed.

Need more information to consider this.

See IV.1)

There is not enough information available to express support for a \$50 expense.

See IV.1)

Q2 - too many unknowns to answer comfortably; Q3 - only as a study not to be implemented w/o GVE consent.

See IV.1)

Q2 - but we need more information as to when this should happen,

See IV.1)

Q4 - Not at this time.

See IV.1)

None the less, the wise move now is to being the process of planning for an alternative water source.

See IV.1)

Q2 - only if wells go bad. Q4 if it comes to do this. Keep me informed about what is going on and what needs to be taken care of to make this change when it is required.

See IV.1)

Is this an all or one proposition?

See IV.1)

Do all Grandview residents have to agree to the domestic water supply? If not, how do those who don't have the money (or credit) pay for the water utility?

See IV.1)

We are in agreement and do not really see other options. At some point, our wells will run dry, then it will be too little, too late to immediately have water. Thank you for looking ahead to the future on our behalf. See IV.1)

Water alternatives will be necessary some day. Sooner is better so we will be ready. See IV.1)
Water quality,

IV.2) Renewable water will not likely be of the same high quality as Dawson and Denver aquifer water currently available in GERWCD. Additional costs will likely be incurred if it is desired to improve the quality of the renewable water prior to use.

Do not want to drink reclaimed or renewable water. See IV.2)
If I am going to spend \$50k I had better be hooking to a mountain fed reservoir system like Denver or Aurora water. If all we are doing is pumping from a different level or place, then I am not gaining insurance for water availability. See IV.2)

We do not want our quality of water spoiled by pumping water into our aquifer for storage. IV.3) GERWCD recommends a pre-feasibility study be performed, comparing degradation of quality and losses between aquifer vs. reservoir storage of renewable water for use in drought years.

2. Who would be responsible for ongoing maintenance and insurance for any liabilities? IV.4) Operation options for the renewable water system will need to be evaluated in a pre-feasibility study.

Safety and security. Quality of water & lack of exposure to anyone desiring to taint our water, be they terrorists, frackers or whatever. See IV.4)

Who going to administer? See IV.4)

Water quality and accessibility. See IV.2) and IV.4) Renewable water will not likely be of the same high quality as Dawson and Denver aquifer water currently available in GERWCD. Additional costs will likely be incurred if it is desired to improve the quality of the renewable water prior to use. Operation options for the renewable water system will need to be evaluated in a pre-feasibility study.